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     (FILE 'HOME' ENTERED AT 15:57:50 ON 01 JUL 2002)

     FILE 'CAOLD, CAPLUS, CROPU, DGENE, DPCI, ENCOMPPAT, ENCOMPPAT2,
     EUROPATFULL, IFIPAT, INPADOC, JAPIO, PAPERCHEM2, PATDD, PATDPA, PATOSDE,
     PATOSEP, PATOSWO, PCTFULL, PIRA, RAPRA, SYNTHLINE, TULSA, TULSA2,
     USPATFULL, USPAT2, WPIDS' ENTERED AT 15:59:23 ON 01 JUL 2002
L1          109 S XYLANASE INHIBIT?
L2           92 DUP REM L1 (17 DUPLICATES REMOVED)
L3           74 S L2 AND (PROTEIN? OR POLYPEPTID?)
L4            5 S L3 AND XYLANASE INHIBIT? PROT?
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=> d ti l3 1-74

L3 ANSWER 1 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI Functional identification of the cDNA coding for a wheat endo-1,4-.beta.-D-**xylanase inhibitor**

L3 ANSWER 2 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI Plant endoxylanase inhibitors and cDNAs, and methods for inhibitor preparation with recombinant cells and purification and use

L3 ANSWER 3 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI Mutant xylanase with altered sensitivity to **xylanase inhibitors** and applications to processing plant materials

L3 ANSWER 4 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI Process of forming a refrigerated dough

L3 ANSWER 5 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI Purification and partial characterization of an endoxylanase inhibitor from barley

L3 ANSWER 6 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI Characterization and sequencing of a thermostable xylanase from Talaromyces emersonii and use of the xylanase in food supplement

L3 ANSWER 7 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI TAXI, a new class of enzyme inhibitors

L3 ANSWER 8 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI Endogenous inhibitors of the endoproteinases and other enzymes of barley

L3 ANSWER 9 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI Xylanases and wheat flour **xylanase inhibitors** and their effects on dough stickiness

L3 ANSWER 10 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI A novel class of **xylanase inhibitor proteins**

L3 ANSWER 11 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI Triticum aestivum **Xylanase Inhibitor** (TAXI), a New Class of Enzyme Inhibitor Affecting Breadmaking Performance

L3 ANSWER 12 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI Sugar ring distortion in the glycosyl-enzyme intermediate of a family G/11 xylanase

L3 ANSWER 13 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI A novel class of **protein** from wheat which inhibits xylanases

L3 ANSWER 14 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI Inhibitors of cellulolytic, xylanolytic and .beta.-glucanolytic enzymes and applications

L3 ANSWER 15 OF 74 CAPLUS COPYRIGHT 2002 ACS
TI Evidence for the presence of a pentosanase inhibitor in wheat flours

L3 ANSWER 16 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 17 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 18 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 19 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 20 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 21 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 22 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 23 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 24 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 25 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 26 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 27 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 28 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 29 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 30 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 31 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 32 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 33 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 34 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 35 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI New **xylanase inhibiting protein** useful as stabilizers for xylan degrading enzymes applied in food, feed and nonfood as paper and pulp technology -

L3 ANSWER 36 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 37 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 38 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 39 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 40 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 41 OF 74 DGENE (C) 2002 THOMSON DERWENT

TI Mutant xylanase **protein** identified using **xylanase** **inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 42 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase** **inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 43 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase** **inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 44 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase** **inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 45 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase** **inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 46 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase** **inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 47 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase** **inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 48 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase** **inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 49 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase** **inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 50 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Inhibitors of cellulolytic, xylanolytic or beta-glucanolytic enzymes - useful in the brewing, baking and paper and pulp industries

L3 ANSWER 51 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Inhibitors of cellulolytic, xylanolytic or beta-glucanolytic enzymes - useful in the brewing, baking and paper and pulp industries

L3 ANSWER 52 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 53 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 54 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening

for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 55 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 56 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 57 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 58 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 59 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 60 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 61 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 62 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Separating and/or isolating inhibitors of cellulolytic, xylanolytic, or beta-glucanolytic enzymes comprises using endoxylanases during screening for inhibition activity or affinity chromatography with immobilised enzymes -

L3 ANSWER 63 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 64 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 65 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity

to **xylanase inhibitor** -

L3 ANSWER 66 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 67 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 68 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Novel variant xylanase **polypeptide** or its fragment useful for degrading or modifying plant cell wall, comprises amino acid modifications such that the **polypeptide** has altered sensitivity to **xylanase inhibitor** -

L3 ANSWER 69 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 70 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 71 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 72 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 73 OF 74 DGENE (C) 2002 THOMSON DERWENT
TI Mutant xylanase **protein** identified using **xylanase inhibitor** useful for preparing non-sticky dough for bakery products -

L3 ANSWER 74 OF 74 DPCI (C) 2002 THOMSON DERWENT
TI New **xylanase inhibiting protein** useful as stabilizers for xylan degrading enzymes applied in food, feed and nonfood as paper and pulp technology.

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L3 ANSWER 11 OF 74 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:521824 CAPLUS
DOCUMENT NUMBER: 132:136634
TITLE: Triticum aestivum **Xylanase Inhibitor** (TAXI), a New Class of Enzyme Inhibitor Affecting Breadmaking Performance
AUTHOR(S): Debyser, W.; Peumans, W. J.; Van Damme, E. J. M.; Delcour, J. A.
CORPORATE SOURCE: Laboratory of Food Chemistry, Katholieke Universiteit Leuven, Heverlee, B-3001, Belg.
SOURCE: Journal of Cereal Science (1999), 30(1), 39-43
CODEN: JCSCDA; ISSN: 0733-5210
PUBLISHER: Academic Press
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 17-11 (Food and Feed Chemistry)
Section cross-reference(s): 7

ABSTRACT:
To demonstrate that cereals contain **protein** inhibitor(s) of endoxylanases, the Triticum aestivum **xylanase-inhibitor** (TAXI) was isolated and characterized. The authors also investigated whether the endoxylanase inhibitor identified is active during the breadmaking process. The N-terminus of TAXI had no sequence similarity with any other known ***protein*** . TAXI was eluted from the gel filtration column with an apparent Mr of .apprx.40 kDa and migrated upon isoelec. focusing as a single band with a pI of .apprx.8.8. Wheat loaves were prepd. without or with A. niger endoxylanase by using a straight dough procedure. The max. increase in bread vol. produced by the A. niger endoxylanase was .apprx.20%. When the same level of endoxylanase activity was added together with purified TAXI, no increase in bread vol. occurred. Upon addn. of TAXI alone, the bread vol. was reduced by 8%. Thus, endogeneous wheat flour endoxylanases have a pos. effect on bread vol. and are inhibited by TAXI. Accordingly, breeding TAXI-deficient wheat varieties or varieties with low levels of expression of this inhibitor may be important for improving breadmaking performance. (c) 1999 Academic Press.

SUPPL. TERM: wheat **xylanase inhibitor** purifn characterization; endoxylanase inhibitor wheat breadmaking
INDEX TERM: **Proteins**, specific or class
ROLE: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)
(TAXI (Triticum aestivum **xylanase-inhibiting**); purifn. and characterization endoxylanase inhibitor from wheat and enzyme inhibitor effect on bread vol.)
INDEX TERM: Bread
(endoxylanase inhibitor from wheat effect on bread vol.)
INDEX TERM: **Protein** sequences
(of **xylanase inhibitor** from wheat)
INDEX TERM: Wheat
(**xylanase inhibitor** from)
INDEX TERM: 37278-89-0, Endoxylanase
ROLE: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(purifn. and characterization endoxylanase inhibitor from wheat and effect on bread vol. of endoxylanase and inhibitor)
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD.
REFERENCE(S): (1) Aman, P; Swedish Journal of Agricultural Research 1984, V14, P135
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L4 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:205885 CAPLUS
DOCUMENT NUMBER: 131:29048
TITLE: A novel class of **protein** from wheat which inhibits xylanases
AUTHOR(S): McLauchlan, W. Russell; Garcia-Conesa, Maria T.; Williamson, Gary; Roza, Martinus; Ravestein, Peter; Maat, Jan
CORPORATE SOURCE: Institute of Food Research, Norwich, NR4 7UA, UK
SOURCE: Biochemical Journal (1999), 338(2), 441-446
CODEN: BIJOAK; ISSN: 0264-6021
PUBLISHER: Portland Press Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 6-3 (General Biochemistry)
Section cross-reference(s): 7, 11

ABSTRACT:
We have purified a novel class of **protein** that can inhibit the activity of endo-.beta.-1,4-xylanases. The inhibitor from wheat (Triticum aestivum, var. Soisson) is a glycosylated, monomeric, basic **protein** with a pI of 8.7-8.9, a mol. mass of 29 kDa and a unique N-terminal sequence of AGGKTGQVTVFWGRN. We have shown that the **protein** can inhibit the activity of two family-11 endo-.beta.-1,4-xylanases, a recombinant enzyme from Aspergillus niger and an enzyme from Trichoderma viride. The inhibitory activity is heat and protease sensitive. The kinetics of the inhibition have been characterized with the A. niger enzyme using sol. wheat arabinoxylan as a substrate. The Km for sol. arabinoxylan in the absence of inhibitor is 20.+-.2 mg/mL with a kcat of 103.+-.6 s-1. The kinetics of the inhibition of this reaction are competitive, with a Ki value of 0.35 .mu.M, showing that the inhibitor binds at or close to the active site of free xylanase. This report describes the first isolation of a **xylanase inhibitor** from any organism.

SUPPL. TERM: **xylanase inhibitor protein**
wheat purifn
INDEX TERM: Amino acids, biological studies
ROLE: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(compn.; novel class of **protein** from wheat which inhibits xylanases)
INDEX TERM: Dissociation constant
(novel class of **protein** from wheat which inhibits xylanases)
INDEX TERM: Enzyme kinetics
(of inhibition; novel class of **protein** from wheat which inhibits xylanases)
INDEX TERM: **Proteins**, specific or class
ROLE: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)
(**xylanase inhibitors**; novel class of **protein** from wheat which inhibits xylanases)
INDEX TERM: 9025-57-4, Endo-.beta.-1,4-xylanase
ROLE: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(novel class of **protein** from wheat which inhibits xylanases)
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD.
REFERENCE(S):
(1) Abu-Goukh, A; Physiol Plant Pathol 1983, V23, P111 CAPLUS
(2) Altshul, S; J Mol Biol 1990, V215, P403
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L3 ANSWER 5 OF 74 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:542936 CAPLUS
DOCUMENT NUMBER: 135:241213
TITLE: Purification and partial characterization of an endoxylanase inhibitor from barley
AUTHOR(S): Goesaert, H.; Debyser, W.; Gebruers, K.; Proost, P.; Van Damme, J.; Delcour, J. A.
CORPORATE SOURCE: Laboratory of Food Chemistry, Katholieke Universiteit Leuven, Heverlee, B-3001, Belg.
SOURCE: Cereal Chemistry (2001), 78(4), 453-457
CODEN: CECHAF; ISSN: 0009-0352
PUBLISHER: American Association of Cereal Chemists
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 17-11 (Food and Feed Chemistry)
Section cross-reference(s): 7, 11

ABSTRACT:
Hordeum vulgare L. **xylanase inhibitor** (HVXI), an endoxylanase inhibitor with a **protein** structure, was purified to homogeneity from barley (Hordeum vulgare L.). HVXI is a nonglycosylated monomeric **protein**, with a mol. wt. of .apprxeq.40,000 and a pI .gtoreq. 9.3. Although it inhibits different endoxylanases to a varying degree, the activities of an .alpha.-L-arabinofuranosidase and a .beta.-D-xylosidase were not inhibited. Apparently, HVXI occurs in two mol. forms. These characteristics and the N-terminal sequences of the composing ***polypeptides*** show that HVXI is homologous with Triticum aestivum L. ***xylanase*** **inhibitor** I, an endoxylanase inhibitor from wheat flour.

SUPPL. TERM: endoxylanase inhibitor barley; **xylanase inhibitor** barley
INDEX TERM: Aspergillus niger
Bacillus subtilis
Trichoderma viride
(endoxylanase; purifn. and partial characterization of endoxylanase inhibitor from barley)
INDEX TERM: Barley
Protein sequences
(purifn. and partial characterization of endoxylanase inhibitor from barley)
INDEX TERM: 37278-89-0P, Endoxylanase
ROLE: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)
(inhibitor; purifn. and partial characterization of endoxylanase inhibitor from barley)
REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD.
REFERENCE(S):
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L4 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:545426 CAPLUS
DOCUMENT NUMBER: 135:91888
TITLE: Process of forming a refrigerated dough
INVENTOR(S): Poulsen, Charlotte Horsmans; Sorensen, Jens Frisbaek
PATENT ASSIGNEE(S): Danisco A/S, Den.
SOURCE: PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
INT. PATENT CLASSIF.:
MAIN: A21D006-00
SECONDARY: A21D002-26
CLASSIFICATION: 17-11 (Food and Feed Chemistry)
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001052657	A1	20010726	WO 2001-IB168	20010117

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: GB 2000-1136 A 20000118
ABSTRACT:
A process of forming a refrigerated dough is described. The process comprises admixing cereal flour and water with a **protein** that can reduce or prevent the enzymic (xylanase) degrdn. of arabinoxylan present in the cereal flour.

SUPPL. TERM: dough refrigerated arabinoxylan **xylanase inhibitor protein**
INDEX TERM: Bakery products
Dough
Flours and Meals
(process of forming a refrigerated arabinoxylan-contg. dough)
INDEX TERM: Wheat flour
(**xylanase inhibitor** from; process of forming a refrigerated arabinoxylan-contg. dough)
INDEX TERM: **Proteins**, general, biological studies
ROLE: FFD (Food or feed use); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**xylanase inhibitors**; process of forming a refrigerated arabinoxylan-contg. dough)
INDEX TERM: 37278-89-0P, **Xylanase**
ROLE: FFD (Food or feed use); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**inhibitor**; process of forming a refrigerated arabinoxylan-contg. dough)
INDEX TERM: 9040-27-1, Arabinoxylan
ROLE: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(process of forming a refrigerated arabinoxylan-contg. dough)
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS

RECORD.

REFERENCE(S):

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L8 ANSWER 1 OF 57 AGRICOLA
ACCESSION NUMBER: 97:18424 AGRICOLA
DOCUMENT NUMBER: IND20551720
TITLE: Production of beta-xylosidase activity by Trichoderma harzianum strains.
AUTHOR(S): Ximenes, F.A. de; Silveira, F.Q.P. de.; Filho, X.F.
CORPORATE SOURCE: Universidade de Brasilia, Brasilia, Brasil.
SOURCE: Current microbiology, **Aug 1996**. Vol. 33, No. 2. p. 71-77
Publisher: New York, N.Y. : Springer-Verlag New York, Inc.
ISSN: 0343-8651
NOTE: Includes references
PUB. COUNTRY: New York (State); United States
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English
AB Nine Trichoderma harzianum strains were screened for beta-xylosidase activity when grown in solid-state cultures on media containing **wheat** bran as the carbon source. All strains produced beta-xylosidase activity, the most active being in extracts of cultures of T. harzianum strain 4. A beta-xylosidase was purified by ammonium sulfate precipitation, ultrafiltration, gel filtration, and ion exchange chromatography from solid-state cultures of T. harzianum strain C. Enzyme preparations yielded a single band when stained for **protein** following electrophoresis. The molecular weight value, calculated following SDS-PAGE, was determined to be 60 kDa. beta-Xylosidase was most active at pH 4.0-4.5 and 70 degrees C. This enzyme had a Km value of 0.053 mM. The phenol-sulfuric acid method detected the presence of a small amount of carbohydrate in the purified enzyme preparation. beta-Xylosidase was active against some p-nitrophenylglycosides. The enzyme was inactive against xylan and PNPG. beta-xylosidase activity was **inhibited** by xylose and SDS. Iodoacetamide, dithiothreitol, gluconolactone, glucose, and mercuric chloride failed to inactivate this enzyme's activity. A synergistic effect was observed when beta-xylosidase from T. harzianum strain C and **beta-xylanase** from Aspergillus fumigatus were incubated with pretreated arabinoxylan.

L8 ANSWER 2 OF 57 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1995:114606 BIOSIS
DOCUMENT NUMBER: PREV199598128906
TITLE: Variation in pyrone production, lytic enzymes and control of rhizoctonia root rot of **wheat** among single-spore isolates of Trichoderma koningii.
AUTHOR(S): Worasatit, N.; Sivasithamparam, K. (1); Ghisalberti, E. L.; Rowland, C.
CORPORATE SOURCE: (1) Soil Sci. Plant Nutr., Sch. Agric., University Western Australia, Nedlands 6009, WA Australia
SOURCE: Mycological Research, (1994) Vol. 98, No. 12, pp. 1357-1363.
ISSN: 0953-7562.
DOCUMENT TYPE: Article
LANGUAGE: English
AB Fifty-four single-spore isolates were obtained from two **wheat** field strains of Trichoderma koningii. These isolates **inhibited** the growth of Rhizoctonia solani to varying levels when tested on potato dextrose agar. 6-Pentyl-alpha-pyrone was isolated only from the extracts obtained from those isolates which showed strong **inhibition** of the pathogen on agar. Six isolates, three pyrone producers and three non-producers, were tested for **protection** of **wheat** against rhizoctonia root rot under controlled conditions. Only the pyrone producers significantly reduced root rot when applied to the soil and incubated for 14 d with the pathogen before planting. Those not producing pyrone did not reduce the disease when applied to the soil either with or without an incubation period in soil. There was no relationship between

the disease **protection** ability of the isolates and their mycoparasitic ability or their production of chitinase, glucanase, cellulase or **xylanase**. This indicates that the pyrone antibiotic may have an important role in the reduction of rhizoctonia root rot of **wheat** by the effective strains and that the ability to produce the antibiotic may vary among asexually produced progenies.

L8 ANSWER 3 OF 57 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1993:100018 BIOSIS
DOCUMENT NUMBER: PREV199395055214
TITLE: Purification and general properties of xylanase from Aspergillus terreus.
AUTHOR(S): Ghareib, Mohamed; Nour El Dein, Mahmoud M.
CORPORATE SOURCE: Biol. Dep., Fac. Education, Ain Shams Univ., Roxy, Cairo Egypt
SOURCE: Zentralblatt fuer Mikrobiologie, (1992) Vol. 147, No. 8, pp. 569-576.
ISSN: 0232-4393.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English; German
AB Aspergillus terreus THOM produced appreciable yield of **xylanase** on medium containing acid pretreated **rice** straw as sole carbon source. The enzyme was purified approximately 25-fold by ammonium sulfate precipitation, gel filtration through Sephadex G-50 and ion-exchange chromatography on DEAE-cellulose with a yield of about 23% and specific activity of 15.38 units/mg **protein**. Optimum activity against xylan was at 45 degree C and pH 4.5. Relative stability of the enzyme was recorded at pH range of 4-5.5. Heating the enzyme preparation at 60 degree C for one hour resulted in a 82.61% loss of activity. After exposing to 90 degree C for 10 minutes **xylanase** retained 4.28% of its original activity. The purified enzyme lost 25% of the original activity after keeping at 4 degree C for 9 months in 0.05 M acetate buffer (pH 4.5). The K-m value of the enzyme was found to be 0.83 mM. Zn-2+ was the most enhancing agent for **xylanase** activity. Cu-2+ followed by Co-2+ and K+ were the more deterrent cations. Xylanolytic activity of A. terreus was strongly **inhibited** by HgCl-2, 2, 4-dinitrophenol (DNP), phloridzin and ethylene diamino tetra acetic acid (EDTA).

L8 ANSWER 4 OF 57 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1991:430688 BIOSIS
DOCUMENT NUMBER: BA92:86853
TITLE: PURIFICATION AND COOPERATIVE ACTIVITY OF ENZYMES CONSTITUTING THE XYLAN-DEGRADING SYSTEM OF THERMOMONOSPORA-FUSCA.
AUTHOR(S): BACHMANN S L; MCCARTHY A J
CORPORATE SOURCE: DEP. GENETICS MICROBIOL,. UNIV. LIVERPOOL, P.O. BOX 147, LIVERPOOL L69 3BX, UK.
SOURCE: APPL ENVIRON MICROBIOL, (1991) 57 (8), 2121-2130.
CODEN: AEMIDF. ISSN: 0099-2240.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB The thermophilic actinomycete Thermomonospora fusca produced **endoxylanase**, .alpha.-arabinofuranodsidase, .beta.-xylosidase, and acetal esterase activities maximally during growth on xylan. Growth yields on glucose, xylose, or arabinose were comparable, but production of endoxylansase and .beta.-oxylosidase was not induced on these substrates. The crude **xylanase** activity was thermostable and relatively resistant to end product **inhibition** by xylobiose and xylan hydrolysis products. Six **proteins** with **xylanase** activity were identified by zymogram analysis of isoelectric focusing gels, but only a 32-kDa **protein** exhibiting three isomeric forms could be purfied by fast **protein** liquid chromatography. Endoglucanases were also identified in carboxymethylcellulose-grown cultures, and their distinction from **endoxylanases** was confirmed. .alpha.-Arabinofuranosidase activity was due to a single dimeric **protein** of 92 kDa, which was particularly resistant to

end product **inhibition** by arabinose. Three bands of acetyl esterase activity were detected by zymogram analysis, and there was evidence that these mainly consisted of an intracellular 80-kDa **protein** secreted to yield active 40-kDa subunits in the culture supernatant. The acetyl esterases were found to be responsible for acetyl xylan esterase activity in T. fusca, in contrast to the distinction proposed in some other systems. The addition of purified .beta.-oxylosidase to **endoxylanase** increased the hydrolysis of xylan, probably by relieving end product **inhibition**. The enhanced saccharification of **wheat** straw caused by the addition of purified .alpha.-arabinofuranosidase to T. fusca **endoxylanase** suggested a truly synergistic relationship, in agreement with proposals that arabinose side groups on the xylan chain participate in cross-linking within the plant cell wall structure.

L8 ANSWER 5 OF 57 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1990:265954 BIOSIS
DOCUMENT NUMBER: BA90:8040
TITLE: HOST-PATHOGEN INTERACTIONS XXXVI. PARTIAL PURIFICATION AND CHARACTERIZATION OF HEAT-LABILE MOLECULES SECRETED BY THE **RICE** BLAST PATHOGEN THAT SOLUBILIZE PLANT CELL WALL FRAGMENTS THAT KILL PLANT CELLS.
AUTHOR(S): BUCHELI P; DOARES S H; ALBERSHEIM P; DARVILL A
CORPORATE SOURCE: COMPLEX CARBOHYDRATE RES. CENT. AND DEP. BIOCHEM., UNIV. GA., 220 RIVERBEND ROAD, ATHENS, GA. 30602, USA.
SOURCE: PHYSIOL MOL PLANT PATHOL, (1990) 36 (2), 159-174.
CODEN: PMPPEZ. ISSN: 0885-5765.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB Heat-labile factors capable of killing plant cells are secreted by the **rice** pathogen Magnaporthe grisea when grown on **rice** cell walls. **Inhibition** of [14C]-leucine incorporation into **maize** cells (Zea mays cv. Black Mexican Sweet) was shown to be as reliable as the vital dyes 2,3,5-triphenyltetrazolium chloride and fluorescein diacetate for assessing cell viability. The heat-labile factors responsible for killing plant cells were partially purified by CM-Sephadex and Superose 12 chromatography. A combination of four of the Superose 12 column fractions synergistically killed the plant cells; the killing activity of the combined fractions was 2.5 times as high as that obtained by the sum of the four fractions assayed individually. We purified to apparent homogeneity pectin lyase (PL), pectin methylesterase (PME), and **xylanase** from the fungal culture filtrate. When these enzymes were tested in various combinations and at the same concentrations as they were found in the culture filtrate, they did not kill plant cells. The same enzymes were not able to release fragments that killed plant cells from isolated **maize** cell walls, whereas fractions containing the partially purified heat-labile killing activity rapidly released heat-stable **maize** cell wall fragments that killed **maize** cells. The results of this study indicate that a heat-labile killing activity secreted by M. grisea, which probably consists of two or more factors (presumably **proteins**), solubilizes from **maize** cell walls heat-stable fragments (presumably carbohydrates) that kill **maize** cells. Furthermore, although pectic enzymes may prove to be necessary for killing, the pectic enzymes in the culture filtrate of M. grisea do not, by themselves, kill **maize** cells.

L8 ANSWER 6 OF 57 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1989:9815 BIOSIS
DOCUMENT NUMBER: BA87:9815
TITLE: FACTORS INFLUENCING PROTOPLAST VIABILITY OF SUSPENSION-CULTURED **RICE** CELLS DURING ISOLATION PROCESS.
AUTHOR(S): ISHII S
CORPORATE SOURCE: BIOSCI. RES. LAB., KIKKOMAN CORP., 399 NODA, NODA-SHI, CHIBA-KEN 278, JPN.
SOURCE: PLANT PHYSIOL (BETHESDA), (1988) 88 (1), 26-29.
CODEN: PLPHAY. ISSN: 0032-0889.

FILE SEGMENT: BA; OLD
LANGUAGE: English

AB Callus cells of **rice** (Oryza sativa L.) that were actively dividing in suspension culture had lost the ability to divide during the isolation process of **protoplasts**. Factors influencing the **protoplast** viability were examined using highly purified preparations of cellulase C1, **xylanase**, and pectin lyase, which were essential enzymes for the isolation of **protoplasts** from the **rice** cells. The treatment of the cells with **xylanase** and pectin lyase, both of which are macerating enzymes, caused cellular damage. **Xylanase** treatment was more detrimental to the cells. Osmotic stress, cell wall fragments solubilized by **xylanase**, and disassembly of cortical microtubules were not the primary factors which damaged the **rice** cells and **protoplasts**. The addition of AgNO3, an **inhibitor** of ethylene action, to the **protoplast** isolation medium increased the number of colonies formed from the cultured **protoplasts**, although the yield of **protoplasts** was reduced by the addition. Superoxide radical (O2-) was generated from the cells treated with **xylanase** or pectin lyase. The addition of superoxide dismutase and catalase to the **protoplast** isolation medium resulted in a marked improvement in **protoplast** viability especially when the non-additive control **protoplasts** formed colonies with a low frequency. The addition of glutathione peroxidase and phospholipase A2, which have been known to reduce and detoxify lipid hydroperoxides in membranes, to the **protoplast** culture medium significantly increased the frequency of colony formation. These results suggested that some of the damage to **rice protoplasts** may be caused by oxygen toxicity.

L8 ANSWER 7 OF 57 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1980:283386 BIOSIS
DOCUMENT NUMBER: BA70:75882
TITLE: FACTORS AFFECTING THE INTAKE AND DIGESTION OF ROUGHAGE BY SHEEP FED **MAIZE** STRAW SUPPLEMENTED WITH **MAIZE** GRAIN.
AUTHOR(S): HENNING P A; VAN DER LINDEN Y; MATTHEYSE M E; NAUHAUS W K; SCHWARTZ H M; GILCHRIST F M C
CORPORATE SOURCE: NATL. CHEM. RES. LAB., P.O. BOX 395, PRETORIA 0001, S. AFR.
SOURCE: J AGRIC SCI, (1980) 94 (3), 565-574.
CODEN: JASIAB. ISSN: 0021-8596.
FILE SEGMENT: BA; OLD
LANGUAGE: English

AB After a preliminary period in which they were all fed **maize** straw plus a **protein**-mineral supplement, 18 Merino wethers were divided into 6 groups and fed straw, **proteins** and minerals as before, plus pellets containing **maize** grain so that these constituted 0, 78, 156, 235, 313 and 393 g/kg of the total daily intake. The diets provided sufficient **protein** so that NH3 and branched-chain volatile fatty acids were not limiting for growth of the fiber-digesting bacteria in the rumen. The intake of straw, the digestibility of cellulose and hemicellulose, and the mass of cellulose and hemicellulose digested per day declined linearly as the proportion of pellets in the diet increased above 78 g/kg. This decline was not related to the pH of the ruminal contents which was unaffected by the feeding of up to and including 235 g pellets/kg diet, and which, with 1 exception, was only 2-6 pH-hours below pH 6 when more grain was fed. As the proportion of pellets in the diet increased the number of cellulolytic bacteria in the rumen declined to an extent which correlated well with the decrease in mass of cellulose digested per day. There was no change in the relative proportions of the predominant genera. There was no decrease in the number of xylanolytic bacteria in the rumen as more pellets were fed, but there was an indication of a change in the predominant genera producing diffusive **xylanases**. Some factor, in addition to nutrient limitation and pH, may play a role in the decrease in intake and digestion of roughage when starch is fed. Starch or sugars derived from it may per se **inhibit** the synthesis and/or activity of the rumen cellulases and hemicellulases.

L8 ANSWER 8 OF 57 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1977:218519 BIOSIS
DOCUMENT NUMBER: BA64:40883
TITLE: STUDIES ON THE BACTERIAL LEAF BLIGHT OF **RICE** PART 2 A COMPARISON OF HYDROLYTIC ENZYME ACTIVITY BETWEEN DISEASED AND HEALTHY TISSUE.
AUTHOR(S): MIYAZAKI E; YAMANAKA S; MISAWA T
SOURCE: ANN PHYTOPATHOL SOC JPN, (1976) 42 (1), 21-29.
CODEN: NSBGAM. ISSN: 0031-9473.
FILE SEGMENT: BA; OLD
LANGUAGE: Unavailable
AB The activities of various hydrolytic enzymes in **rice** tissues infected with Xanthomonas oryzae were measured. Their activities were compared with those of healthy leaf tissue. The production of enzymes by the pathogenic bacterium was investigated in the culture medium. The enzymes were cellulase, invertase, **xylanase**, phosphatase, .beta.-amylase (.alpha.-amylase), pectinase (pectin methylesterase, polygalacturonase), lipase, lecithinase and **protease**. Activities of examined activity increased in the diseased tissue, but polygalacturonase was not activated by the infection. Enzyme activities increased more in the early stage of the infection than in the late stage (8 days after inoculation), except .beta.-amylase. Cellulase alone was activated more in the late stage. Increased activities apparently originated from the enzymes produced by the pathogenic bacterium. There were 3 peaks in pH value-enzyme activity curve of **protease**; pH 8.7 **protease**-activity greatly increased with infection. Influences of metal salts upon the partially purified **protease** were investigated. Mn, Co and Fe promoted the activities of 3 **proteases**. Fe stimulated only the activity of pH 5.0-**protease**. Hg **inhibited** every enzyme. Parallel relation was observed between the activity of pH 8.7-**protease** of the 7 isolates of the pathogen and their pathogenicity.

L8 ANSWER 9 OF 57 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI
ACCESSION NUMBER: 1995-09690 BIOTECHDS
TITLE: Protein production in monocotyledonous plants; recombinant protein expression in **wheat**, **rice**, oat, **rye**, **maize**, **sorghum** or **barley** transgenic plant, protein secretion into endosperm, and purification after malting
AUTHOR: Rodriguez R
PATENT ASSIGNEE: Univ.California
PATENT INFO: WO 9514099 **26 May 1995**
APPLICATION INFO: WO 1994-US13179 15 Nov 1994
PRIORITY INFO: US 1993-153563 16 Nov 1993
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 1995-200388 [26]
AB A new method for protein expression in a monocotyledon seed with endosperm surrounded by aleurone or scutella epithelium involves malting seeds containing a target gene with a seed germination-inducible promoter (e.g. from an alpha-amylase, sucrose-synthase or sucrose-6-phosphate-synthetase gene) and DNA encoding a signal peptide for protein secretion into the endosperm, under induction conditions. The seed is from **wheat** (Triticum aestivum), **rice** (Oryza sativa, preferred), oat (Avena sp.), **rye** (Secale cereale), **maize** (Zea mays), **sorghum** or **barley** (Hordeum vulgare). The promoter may be regulated by a plant growth factor, or by a small molecule, e.g. glucose, sucrose or a sugar phosphate. The protein may be alpha-1-antitrypsin, antithrombin-III, fibrinogen, human serum albumin, Factor-VIII, granulocyte or granulocyte-macrophage colony stimulating factor, endo-1,4-beta-D-xylanase (EC-3.2.1.8), oxidoreductase, peroxidase (EC-1.11.1.7), glucanase, alpha-amylase (EC-3.2.1.1), phytase or glucose-oxidase (EC-1.1.3.4). The gene is expressed during germination, and is isolated from the malt. (110pp)

L8 ANSWER 10 OF 57 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI
ACCESSION NUMBER: 1994-08293 BIOTECHDS
TITLE: Purification and characterization of a ferulic-acid-esterase (FAE-III) from Aspergillus niger: specificity for the phenolic moiety and binding to microcrystalline cellulose; ferulate-esterase isolation and properties
AUTHOR: Faulds C B; *Williamson G
CORPORATE SOURCE: AFRC-Inst.Food-Res.Norwich
LOCATION: Department of Food Molecular Biochemistry, AFRC Institute of Food Research, Norwich Research Park, Colney, Norwich NR4 7UA, UK.
SOURCE: Microbiology; (**1994**) 140, Pt.4, 779-87
CODEN: 6595D
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An inducible ferulate-esterase (FAE-III) was isolated from Aspergillus niger CBS 120.49 grown on oat spelt xylan. Purification involved ammonium sulfate precipitation, FPLC hydrophobic interaction chromatography on Phenyl-Sepharose and anion-exchange chromatography on Sephadex G-25 PD-10. The enzyme was purified 25.7-fold, with an activity yield of 117% (indicating the removal of an **inhibitory** substance). The purified enzyme appeared to be almost pure by SDS-PAGE. It had a mol.wt. of 36,000 and a pI of 3.3. With methyl ferulate as substrate, the enzyme had a specific activity of 67 IU/mg **protein**, a pH optimum of 5, a temp. optimum of 55-60 deg, a Km of 2.08 mM and a Vmax of 175 umol/min.mg **protein**. The enzyme was active on methyl sinapinate, methyl-3,4-dimethoxy cinnamate and methyl p-coumarate, but not on benzoic acid methyl esters or methyl caffeate. The specific activity of FAE-III on destarched **wheat** bran was 31 U/mg **protein** in the presence of Trichoderma viride endo-1,4-beta-**D-xylanase** (EC-3.2.1.8) and 3 U/mg **protein** in the absence. FAE-III showed pH-dependent binding to microcrystalline cellulose. (42 ref)

L8 ANSWER 11 OF 57 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI
ACCESSION NUMBER: 1994-04175 BIOTECHDS
TITLE: Enzyme productivity from the protoplast regenerants of Aspergillus awamori; fungus protoplast regeneration for production of cellulase, endo-1,4-beta-D-xylanase and beta-glucosidase
AUTHOR: Marinova D N
CORPORATE SOURCE: Univ.Sofia
LOCATION: Department of Engineering Biology, Faculty of Biology, Sofia University, 8 Dr. Tzankov Str., Sofia, Bulgaria.
SOURCE: Lett.Appl.Microbiol.; (**1994**) 18, 1, 30-31
CODEN: LAMIE7
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Selection of **protoplast** regenerants, from the hydrolase-producing Aspergillus awamori KL1, for enhanced enzyme productivity was studied. KL1 was cultivated in Czapek medium containing 1% **wheat** bran and 2% microcrystalline cellulose, with shaking at 28 deg for 72 hr. A mixture of 1% Trichocease and 1.5% endo-1,4-beta-**D-xylanase** (EC-3.2.1.8) was most effective for **protoplast** isolation. The **protoplasts** were obtained using 0.6 M KCl. The **protoplast** regeneration medium contained 0.6 M sucrose, casamino acids (0.2%), yeast extract (0.2%) and 1.2% agar. The plates were overlaid with soft medium containing 0.4% agar and the regeneration frequency was 18.4%. The majority of strains secreted cellulase (EC-3.2.1.4), endo-1,4-beta-**D-xylanase** and beta-glucosidase (EC-3.2.1.21) with activity varying closely around the parental level. The regenerated strains KL1-RM and KL1-RS produced the highest activity of all 3 enzymes in comparison with KL1. Cellulase produced by the parent and one of the regenerants differed in their absorbtivity, sensitivity to product **inhibition** and thermostability. (10 ref)

L8 ANSWER 12 OF 57 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI
ACCESSION NUMBER: 1993-06549 BIOTECHDS
TITLE: Hydrolytic enzyme(s) production in Micrococcus roseus grown on different cellulosic substrates; cellulase, beta-glucosidase, endo-1,4-beta-D-xylanase and beta-xylosidase production by a termite gut isolate
AUTHOR: Paul J; Varma A K
LOCATION: Microbiology Unit, School of Life Sciences, Jawaharlal Nehru University, New Delhi 110067, India.
SOURCE: Lett.Appl.Microbiol.; (**1993**) 16, 3, 167-69
CODEN: LAMIE7
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Micrococcus roseus G12, isolated from the gut of the higher termite Odontotermes obesus, exhibited cellulose digesting properties. A lignocellulosic substrate, **rice** husk, induced cellulase (EC-3.2.1.4) (1.85 U/mg **protein**), beta-glucosidase (EC-3.2.1.21) (0.82 U/mg), endo-1,4-beta-**D-xylanase** (EC-3.2.1.8) (5.30 U/mg) and beta-xylosidase (EC-3.2.1.37) (1.70 U/mg) activities. CM-cellulose induced cellulase production (1.56 U/mg). Beta-glucosidase activity was quite pronounced when **rice** husk was supplemented with CM-cellulose or cellobiose. **Xylanase** and beta-xylosidase activities were both induced by xylan (3.50 U/mg and 1.90 U/mg, respectively) and xylobiose (4.70 U/mg and 2.35 U/mg, respectively, whereas CM-cellulose induced partial activity. Cellulase and **xylanase** were secreted into the medium, whereas beta-glucosidase and beta-xylosidase activities were intracellular. Enzyme production was subject to end product **inhibition**. The extracellular enzyme(s) have the potential to saccharify **rice** husk, xylan and CM-cellulose to reducing sugars. All the enzymes exhibited low activity when the bacterium was grown on monosaccharides. (8 ref)

L8 ANSWER 13 OF 57 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 90:17440 CABA
DOCUMENT NUMBER: 901357109
TITLE: Extracellular xylanolytic enzymes of Paecilomyces varioti
AUTHOR: Kelly, C. T.; O'Mahony, M. R.; Fogarty, W. M.
CORPORATE SOURCE: Department of Industrial microbiology, University College, Dublin 4, Republic of Ireland.
SOURCE: Biotechnology Letters, (**1989**) Vol. 11, No. 12, pp. 884-890. 18 ref.
ISSN: 0141-5492
DOCUMENT TYPE: Journal
LANGUAGE: English
AB P. varioti[i] produced an extracellular **xylanase** and beta -xylosidase when cultured in a medium containing xylan and **maize** steep liquor. Xylose (2%, w/v) totally **inhibited** production of both enzymes. The enzymes were purified and both had a pH opt. of 4.0. The **xylanase** had a MW of 20 000, an isoelectric point of 5.2 and was inactive on all substrates tested except xylan. The beta -xylosidase, a **glycoprotein**, had a MW of 67 000, an isoelectric point of 4.0 and had highest activity on p-nitrophenyl- beta -D-xyloside. The **xylanase** had a Km of 49.5 mg/ml for xylan and the beta -xylosidase had a Km of 5.4 mM for p-nitrophenyl- beta -D-xyloside.

L8 ANSWER 14 OF 57 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1988:508841 CAPLUS
DOCUMENT NUMBER: 109:108841
TITLE: Batch and fed-batch solid-state fermentations: kinetics of cell growth, hydrolytic enzymes production, and gibberellic acid production
AUTHOR(S): Kumar, P. K. R.; Lonsane, B. K.
CORPORATE SOURCE: Cent. Food Technol. Res. Inst., Mysore, 570 013, India
SOURCE: Process Biochem. (**1988**), 23(2), 43-7
CODEN: PRBCAP; ISSN: 0032-9592

DOCUMENT TYPE: Journal
LANGUAGE: English
AB In a fed-batch solid-state fermn. involving the feeding of corn starch during idiophase, the rate and the quantities of prodn. of gibberellic acid, dry cell mass, and **proteases** produced were higher than those in batch solid-state fermn., while the values for amylases, cellulases, and **xylanases** were lower. Pectinases were absent in both the systems and partial **inhibition** of gibberellic acid formation occurred with feed policies involving moist **wheat**-bran medium or glucose as compared to corn starch. The results indicate the complex nature of the biochem. changes during the prodn. of gibberellic acid under batch and fed-batch solid-state fermns.

L8 ANSWER 15 OF 57 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1982:595847 CAPLUS
DOCUMENT NUMBER: 97:195847
TITLE: Ethylene effects on amylase activity from isolated **barley** aleurone layers. Possible modification by proteolytic enzymes
AUTHOR(S): Eastwell, Kenneth C.; Spencer, Mary S.
CORPORATE SOURCE: Dep. Plant Sci., Univ. Alberta, Edmonton, AB, T6G 2P5, Can.
SOURCE: Plant Physiol. (**1982**), 70(3), 849-52
CODEN: PLPHAY; ISSN: 0032-0889
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The effect of protease inhibitors on the response of gibberellic acid-treated **barley** aleurone layers to ethylene was examd. In the absence of protease inhibitors, ethylene plus gibberellic acid initially increased the prodn. of amylase activity relative to layers incubated with gibberellic acid alone. Exposure to ethylene plus gibberellic acid for .gtoreq.48 h however, led to depressed levels of amylase activity compared to samples incubated with gibberellic acid in hydrocarbon-free air. The direct assay of proteolytic activity revealed a small increase in activity in response to ethylene. The significance of this response was probed further by including inhibitors of **barley** proteases in the incubation medium. When KBrO3 was introduced, ethylene did not cause any alteration in amylase activity compared to samples incubated in hydrocarbon-free air. However, in the presence of N-ethylmaleimide, ethylene treatment induced a 52% increase in amylase activity recovered from samples after 48 h. These results suggest that proteases contribute to the loss of amylase activity in response to ethylene and thus alter the apparent effect of ethylene on amylase synthesis. The effect of protease inhibitors on other hydrolases is also discussed. During the incubation period, the pH of the medium declined significantly. However, ethylene had no effect on the extent of this decline.

L8 ANSWER 16 OF 57 CEN COPYRIGHT 2002 ACS

ACCESSION NUMBER: 95:3063 CEN
TITLE: ENZYMES FROM MICROORGANISMS IN EXTREME ENVIRONMENTS
Microorganisms growing in extreme environments are reservoirs of enzymes that could change the face of biocatalysis
AUTHOR: Adams, Michael W. W.; Kelly, Robert M.
CORPORATE SOURCE: University of Georgia, and; North Carolina State University
SOURCE: Chemical & Engineering News, (**18 Dec 1995**) Vol. 73, No. 51, pp. 32.
CODEN: CENEAR, ISSN: 0009-2347.
PUBLISHER: American Chemical Society
LANGUAGE: English
WORD COUNT: 5508

L8 ANSWER 17 OF 57 FSTA COPYRIGHT 2002 IFIS
ACCESSION NUMBER: 1996(12):B0001 FSTA
TITLE: Biotechnology & genetic engineering reviews. Volume

13.
AUTHOR: Tombs, M. P. (Editor)
CORPORATE SOURCE: PO Box 716, Andover SP10 1YG, UK; Intercept Ltd. Tel. +44 (0)1264 334748. Fax +44 (0)1264 334058 Univ. of Nottingham, Nottingham, UK
SOURCE: (**1996**) xii + 479pp. ISBN 1-898298-42-4, many ref.
DOCUMENT TYPE: Book
LANGUAGE: English
AB Reviews on a variety of topics within the disciplines of biotechnology and genetic engineering are presented in this book, which constitutes vol. 13 in the series. 15 reviews are included in separate chapters, as follows: Identification of structural genes involved in bacterial exopolysaccharide production (pp. 1-18, many ref.); Progress with **proteome** projects. Why all **proteins** expressed by a genome should be identified and how to do it (pp. 19-50, many ref.); Thermostable **proteases** (pp. 51-100, many ref.); **Xylanases**. From biology to biotechnology (pp. 101-131, many ref.); Marine adhesive **proteins** and some biotechnological applications (pp. 133-165, many ref.); Genetically engineered plants for quality improvement (pp. 167-179, 41 ref.); The environmental impact of genetically engineered crops (pp. 181-195, many ref.); Strategies for in vitro and in vivo translation with non-natural amino acids (pp. 197-216, many ref.); Engineering aspects of carriers for immobilized biocatalysts (pp. 217-235, many ref.); Electrochemical biosensors - ways to improve sensor performance (pp. 237-266, many ref.); **Proteins** as invited guests of reverse micelles. Conformational effects, significance, applications (pp. 267-314, many ref.); DNA transfer and gene expression in transgenic **cereals** (pp. 315-334, many ref.); Collagen-based biomaterials (pp. 335-382, many ref.); Applications of chitin and chitosan for biomaterials (pp. 383-421, many ref.); and **Proteinases** and their **inhibitors** in plants. Role in normal growth and in response to various stress conditions (pp. 421-467, many ref.). An 11-pp. index is also included.

L8 ANSWER 18 OF 57 FSTA COPYRIGHT 2002 IFIS
ACCESSION NUMBER: 1993(09):B0089 FSTA
TITLE: Purification and general properties of xylanase from Aspergillus terreus.
AUTHOR: Ghareib, M.; Nour-El-Dein, M. M.
CORPORATE SOURCE: Fac. of Education, Ain Shams Univ., Cairo, Egypt
SOURCE: Zentralblatt fuer Mikrobiologie, (**1992**) 147 (8) 569-576, 18 ref.
ISSN: 0722-5407
DOCUMENT TYPE: Journal
LANGUAGE: English
SUMMARY LANGUAGE: German
AB Aspergillus terreus produced **xylanase** [xylan endo-1,3-.beta.-xylosidase, EC 3.2.1.32] on medium containing acid pretreated **rice** straw as sole C source. The enzyme was purified approx. 25-fold by ammonium sulphate precipitation, gel filtration through Sephadex G-50 and ion-exchange chromatography on DEAE-cellulose with a yield of approx. 23%. Specific activity of the enzyme was 15.38 U/mg **protein**. Optimum activity against xylan was at 45.degree.C and pH 4.5. Relative stability of the enzyme was recorded at pH range of 4-5.5. Heating the enzyme preparation at 60.degree.C for 1 h resulted in a 82.61% loss of activity. **Xylanase** retained 4.28% of its original activity after heating for 10 min at 90.degree.C. After storage at 4.degree.C for 9 months in 0.05M acetate buffer (pH 4.5) the enzyme lost 25% of its original activity. The K.sub.m was 0.83mM. Zn.sup.2.sup.+ enhanced **xylanase** activity; Cu.sup.2.sup.+, CO.sup.2.sup.+ and K.sup.+ were **inhibitory**. Xylanolytic activity of A. terreus was strongly **inhibited** by HgCl.sub.2, 2,4-dinitrophenol (DNP), phloridzin and EDTA. [From En summ.]

L8 ANSWER 19 OF 57 FSTA COPYRIGHT 2002 IFIS
ACCESSION NUMBER: 1991(11):B0084 FSTA
TITLE: Purification and cooperative activity of enzymes

constituting the xylan-degrading system of Thermomonospora fusca.
AUTHOR: Bachmann, S. L.; McCarthy, A. J.
CORPORATE SOURCE: Correspondence (Reprint) address, A. J. McCarthy, Dep. of Genetics & Microbiol., Univ. of Liverpool, PO Box 147, Liverpool L69 3BX, UK
SOURCE: Applied and Environmental Microbiology, (**1991**) 57 (8) 2121-2130, 57 ref.
ISSN: 0099-2240
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The thermophilic actinomycete Thermomonospora fusca [BD21] produced **endoxylanase**, .alpha.-arabinofuranosidase, .beta.-xylosidase, and acetyl esterase activities maximally during growth on xylan. Growth yields on glucose, xylose, or arabinose were comparable, but production of **endoxylanase** and .beta.-xylosidase was not induced on these substrates. Crude **xylanase** activity was thermostable and resistant to end product **inhibition** by xylobiose and xylan hydrolysis products. 6 **proteins** with **xylanase** activity were identified by zymogram analysis of isoelectric focusing gels, but only a 32 kDa **protein** exhibiting 3 isomeric forms was purified by fast **protein** liquid chromatography. Endoglucanases were also identified in CMC-grown cultures, and their distinction from **endoxylanases** confirmed. .alpha.-Arabinofuranosidase activity was due to a single dimeric **protein** of 92 kDa, which was resistant to end product **inhibition** by arabinose. 3 bands of acetyl esterase activity were detected by zymogram analysis, and these mainly consisted of an intracellular 80 kDa **protein** secreted to yield active 40 kDa subunits in the culture supernatant. Acetyl esterases were responsible for acetyl xylan esterase activity in T. fusca, in contrast to the distinction proposed in some other systems. Addition of purified .beta.-xylosidase to **endoxylanase** increased hydrolysis of xylan, possibly by relieving end product **inhibition**. The enhanced saccharification of **wheat** straw caused by addition of purified .alpha.-arabinofuranosidase to T. fusca **endoxylanase** suggested a synergistic relationship, in agreement with proposals that arabinose side groups on the xylan chain participate in cross-linking within the plant cell wall structure.

L8 ANSWER 20 OF 57 JICST-EPlus COPYRIGHT 2002 JST
ACCESSION NUMBER: 910185666 JICST-EPlus
TITLE: Factors influencing protoplast viability and involvement of singlet oxygen in damage of protoplasts isolated from suspension-cultured **rice** cells.
AUTHOR: ISHII S
CORPORATE SOURCE: Noda Inst. Scientific Research, Chiba-ken, JPN
SOURCE: Rep Noda Inst Sci Res, (1990) no. 34, pp. 1-6. Journal Code: F0970A (Fig. 2, Tbl. 2, Ref. 42)
CODEN: RNIRAV; ISSN: 0078-0944
PUB. COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
LANGUAGE: English
STATUS: New

AB **Rice** (Oryzae sativa) cells derived from roots were actively dividing in suspension culture, but once protoplasts were isolated, they showed a delay of first division and a low frequency of cell division. In some cases the protoplasts, even when isolated by highly purified enzymes, had completely lost the ability to divide and proliferate. Previous paper (Ishii, S., In Vitro Cell. Dev. Biol., 23, 653-658, 1987) demonstrated the generation of singlet oxygen during enzymic isolation of protoplasts. The addition of singlet oxygen quenchers such as 1,4-diazobicyclooctane and alpha-tocopherol to the protoplast isolation medium increased the frequency of colony formation from the isolated protoplasts. These results suggest that singlet oxygen may be involved in a decrease in viability of the **rice** protoplasts. (author abst.)

L8 ANSWER 21 OF 57 NTIS COPYRIGHT 2002 NTIS

ACCESSION NUMBER: 2000(04):313
NTIS ORDER NUMBER: DE99002378/XAB
TITLE: Structures and functions of oligosaccharins. Progress report, June 15, 1993- -March 14, 1995.
AUTHOR: Albersheim, P.
CORPORATE SOURCE: Univ. of Georgia, Complex Carbohydrate Research Center, Athens, GA (United States).
Sponsor: Department of Energy, Washington, DC
NUMBER OF CONTRACT: Contract: FG05-93ER20114
NUMBER OF REPORT: DE99002378/XAB; DOE/ER/20114-T1
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Notes: Sponsored by Department of Energy, Washington, DC.
PUBLICATION DATE: 31 Mar 1995
LANGUAGE: English
COUNTRY: United States
OTHER SOURCE: ERA0002
AB This research focuses on the following: Purification, characterization, and cell wall localization of an (alpha)-fucosidase that inactivates a xyloglucan oligosaccharin; Oligogalacturonides inhibit the formation of roots on tobacco explants; Activation of a tobacco glycine-rich protein gene by a fungal glucan preparation; Fusarium moniliforme secretes four endopolygalacturonases derived from a single gene product; Polygalacturonase-inhibiting protein accumulates in Phaseolus vulgaris L. in response to wounding, elicitors and fungal infection; Generation of (beta)-glucan elicitors by plant enzymes and inhibition of the enzymes by a fungal protein; Polygalacturonase inhibitor proteins from bean (Phaseolus vulgaris L.), pear (Pyrus communis L.) and tomato (Lycopersicon esculentum): Immunological relatedness and specificity of polygalacturonase inhibition; Fungi protect themselves against plant pathogenesis-related glycanases; Purification, cloning, and characterization of two xylanases from Magnaporthe grisea, the rice blast fungus; and Molecular cloning and expression pattern of an (alpha)-fucosidase gene from pea seedlings.

L8 ANSWER 22 OF 57 NTIS COPYRIGHT 2002 NTIS
ACCESSION NUMBER: 1979(01):13142
NTIS ORDER NUMBER: COO-4198-6
TITLE: Degradation of Cellulosic Biomass and Its Subsequent Utilization for the Production of Chemical Feedstocks. Progress Report, March 1--May 31, 1978.
AUTHOR: Wang, D. I. C.; Cooney, C. L.; Demain, A. L.; Gomez, R. F.; Sinskey, A. J.
CORPORATE SOURCE: Massachusetts Inst. of Tech., Cambridge. Dept. of Nutrition and Food Science
Sponsor: Department of Energy
NUMBER OF CONTRACT: Contract: EG-77-S-02-4198
NUMBER OF REPORT: COO-4198-6
212 p. NTIS Prices: PC A10/MF A01
PUBLICATION DATE: May 1978
LANGUAGE: English
OTHER SOURCE: GRA&I7908; ERA citation 04:007683
AB Studies on the xylanase activity of Clostridium thermocellum and other thermophilic anaerobes were continued. It was shown that the xylanase and CMCase activities of C. thermocellum during fermentation are nearly identical. The enzyme complex from C. thermocellum continues to show resistance to feedback inhibition in every assay system tested. No inhibitory effect on Avicel hydrolysis by 50 mg/l of glucose, cellobiose, or xylose was observed. In experiments on thermally exploded poplar, corn cob granules, corn stover, and sugar cane bagasse, C. thermocellum was found to be capable of degrading all of these materials, but the amount of

reducing sugars accumulated was found inversely related to particle size. To increase biomass surface area, as well as biomass concentrations, a packed-bed cellulose fermentor was constructed and tested. Research on the production of ethanol directly from cellulosic biomass by C. thermocellum continued. A method for generating protoplasts from growing cultures of C. thermocellum was developed. Acrylic acid production by Clostridium propionicum was further studied in order to optimize the oxidation of propionic and to acrylic acid. Studies conducted on the aerobic oxidation of lactic acid and propionic acid to acrylic acid by resting cells and cell-free extracts prepared from Escherichia coli were unsuccessful. Production of lactic acid was investigated by employing mixed cultures of Clostridium thermocellum and a thermophilic lactic acid producing bacterium. Studies on the acetone-butanol fermentation focused on means of increasing butanol tolerance by Clostridium acetobutylicum. Acetic acid production by Clostridium thermoaceticum continued to isolate product tolerant strains.

L8 ANSWER 23 OF 57 USPATFULL

ACCESSION NUMBER:	2002:57419 USPATFULL			
TITLE:	Method of improving the properties of a flour dough, a flour dough improving composition and improved food products			
INVENTOR(S):	S.o slashed.e, J.o slashed.rn Borch, Mundelstrup, DENMARK Poulsen, Charlotte Horsmans, Brabrand, DENMARK H.o slashed.strup, Pernille Bak, .ANG.rhus, DENMARK			
PATENT ASSIGNEE(S):	Danisco A/S, DENMARK (non-U.S. corporation)			
	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6358543	B1	20020319	
	WO 9639851		19961219	<--
APPLICATION INFO.:	US 1996-676186		19960912	(8)
	WO 1996-DK239		19960604	
			19960912	PCT 371 date
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1995-483870, filed on 7 Jun 1995, now abandoned			
DOCUMENT TYPE:	Utility			
FILE SEGMENT:	GRANTED			
PRIMARY EXAMINER:	Wong, Leslie			
LEGAL REPRESENTATIVE:	Hunton & Williams			
NUMBER OF CLAIMS:	48			
EXEMPLARY CLAIM:	1			
NUMBER OF DRAWINGS:	0 Drawing Figure(s); 0 Drawing Page(s)			
LINE COUNT:	1353			

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method of improving the rheological properties of a flour dough and the quality of the finished product made from such a dough, including adding an effective amount of an oxido-reductase capable of oxidizing maltose, in particular a hexose oxidase, e.g. isolated from an algal species such as Iridophycus flaccidum, Chondrus crispus or Euthora cristata and a dough improving composition containing the oxidore-ductase.

L8 ANSWER 24 OF 57 USPATFULL

ACCESSION NUMBER:	2001:97651 USPATFULL			
TITLE:	Recombinant hexose oxidase, a method of producing same and use of such enzyme			
INVENTOR(S):	Stougaard, Peter, Skibby, Denmark Hansen, Ole Cai, Copenhagen, Denmark			
PATENT ASSIGNEE(S):	Bioteknologisk Institut, Denmark (non-U.S. corporation)			
	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6251626	B1	20010626	
	WO 9640935		19961219	<--
APPLICATION INFO.:	US 1996-669304		19960911	(8)

	WO 1996-DK238	19960604
		19960911 PCT 371 date
		19960911 PCT 102(e) date

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1995-476910, filed on 7 Jun 1995, now abandoned
DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Achutamurthy, Ponnathapu
ASSISTANT EXAMINER: Moore, William W.
LEGAL REPRESENTATIVE: Hunton & Williams
NUMBER OF CLAIMS: 26
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 14 Drawing Figure(s); 14 Drawing Page(s)
LINE COUNT: 2736
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method of producing hexose oxidase by recombinant DNA technology, recombinant hexose oxidase and the use of such enzyme, in particular in the manufacturing of food products such as doughs and dairy products, animal feed, pharmaceuticals, cosmetics, dental care products and in the manufacturing of lactones. Suitable sources of DNA coding for the enzyme are marine algal species including Chondrus crispus, Iridophycus flaccidum and Euthora cristata. In useful embodiments, the recombinant hexose oxidase is produced by Pichia pastoris, Saccharomyces cerevisiae or E. coli.

L8 ANSWER 25 OF 57 USPATFULL
ACCESSION NUMBER: 2001:59403 USPATFULL
TITLE: Producing protected protein for ruminant feed by combining protein with reducing carbohydrate
INVENTOR(S): Woodroofe, Jonathan Malcolm, 7 Noonan Grove, Woodend, VIC 3442, Australia
Cockbill, Alan William, Heart Street, Dandenong, VIC 3175, Australia

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6221380	B1	20010424	
	WO 9604803		19960222	<--
APPLICATION INFO.:	US 1997-776984		19970206	(8)
	WO 1995-AU479		19950807	
			19970206	PCT 371 date
			19970206	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	AU 1994-7312	19940808

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Levy, Neil S.
LEGAL REPRESENTATIVE: Michael Best & Friedrich LLP
NUMBER OF CLAIMS: 8
EXEMPLARY CLAIM: 1
LINE COUNT: 540

AB The present invention relates to improving the biological efficiency of utilization of protein in ruminant feeds by protection of such protein from substantial degradation in the rumen without markedly reducing the subsequent absorption of the amino acid constituents of the protein in the lower digestive tract. In one aspect of the invention this is achieved by mixing a protein containing material with a reducing carbohydrate and subjecting the mixture to heat, pressure and shear forces.

L8 ANSWER 26 OF 57 USPATFULL
ACCESSION NUMBER: 2000:138313 USPATFULL
TITLE: Enzymatic detergent compositions
INVENTOR(S): Barnabas, Mary Vijayarani, West Chester, OH, United States

Rai, Saroj, West Chester, OH, United States
Mitra, Ashoke Kumar, Mason, OH, United States
Convents, Andre Christian, Cincinnati, OH, United States
PATENT ASSIGNEE(S): The Procter & Gamble Company, Cincinnati, OH, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6133227		20001017	
	WO 9859228		19881201	<--
APPLICATION INFO.:	US 2000-445929		20000217	(9)
	WO 1997-US10972		19970623	
			20000217	PCT 371 date
			20000217	PCT 102(e) date

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Fries, Kery
LEGAL REPRESENTATIVE: Cook, C. Brant, Zerby, K. W., Rasser, J. C.
NUMBER OF CLAIMS: 25
EXEMPLARY CLAIM: 1
LINE COUNT: 2620
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention relates to detergent compositions comprising an enzyme that increases the water-solubility of fatty acid-containing stains/soils, especially an acid-thiolligase, a desaturase enzyme and/or a glutathione S-transferase. These detergent compositions provide cleaning performance on body soils and/or oily/greasy soils and stains.

L8 ANSWER 27 OF 57 USPATFULL
ACCESSION NUMBER: 1999:150703 USPATFULL
TITLE: Method for improving the solubility of vegetable proteins
INVENTOR(S): Nielsen, Per Munk, Bagsv.ae butted.rd, Denmark
Knap, Inge Helmer, Bagsv.ae butted.rd, Denmark
PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5989600		19991123	
	WO 9528850		19951102	<--
APPLICATION INFO.:	US 1996-716450		19960927	(8)
	WO 1995-DK166		19950420	
			19960927	PCT 371 date
			19960927	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1994-470	19940422

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Eisenschenk, Chris
ASSISTANT EXAMINER: Zeman, Mary K
LEGAL REPRESENTATIVE: Zelson, Esq., Steve T., Lambiris, Esq., Elias
NUMBER OF CLAIMS: 31
EXEMPLARY CLAIM: 1
LINE COUNT: 631
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention relates to a method for improving the solubility of vegetable proteins. More specifically, the invention relates to methods for the solubilization of proteins in vegetable protein sources, which methods comprise treating the vegetable protein source with an efficient amount of one or more phytase enzymes, and treating the vegetable protein source with an efficient amount of one or more proteolytic enzymes. In another aspect, the invention provides animal feed additives comprising a phytase and one or more proteolytic enzymes.

L8 ANSWER 28 OF 57 USPATFULL
ACCESSION NUMBER: 1999:146590 USPATFULL
TITLE: Prevention of adverse behavior, diarrhea, skin disorders and infections of the hind gut associated with acidic conditions in humans and animals by the application of antibiotics
INVENTOR(S): Rowe, James Baber, 411 Rockvale Road, Armidale, New South Wales 2350, Australia

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5985891		19991116	
	WO 9620709		19960711	<--
APPLICATION INFO.:	US 1997-860562		19970829	(8)
	WO 1995-AU884		19951229	
			19970829	PCT 371 date
			19970829	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	AU 1994-338	19941229

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Cook, Rebecca
LEGAL REPRESENTATIVE: Lowe Hauptman Gopstein Gilman & Berner
NUMBER OF CLAIMS: 23
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 6 Drawing Figure(s); 6 Drawing Page(s)
LINE COUNT: 1301
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method of treating adverse behavior in animals, manifested in secondary effects such as, in horses, excitability, difficult handling, coprophagy, wood chewing and grasping, or wind sucking, by controlling the formation and accumulation of acid in the hind gut (large intestine) of the gastrointestinal tract that results from the fermentation of excess carbohydrates in the hind gut. This is accomplished by ingesting certain antibiotics with or without combination thereof with certain enzymes. Of specific merit in this invention is the use of virginiamycin to control the passage of carbohydrates into the gastrointestinal tract and the fermentation of these carbohydrates therein. This controls, the accumulation of acid in the digestive tract.

L8 ANSWER 29 OF 57 USPATFULL
ACCESSION NUMBER: 1999:75548 USPATFULL
TITLE: Enzyme and enzyme preparation with endoglucanase activity
INVENTOR(S): Schulein, Martin, Copenhagen .O slashed., Denmark
Oxenb.o slashed.ll, Karen Margrethe, Charlottenlund, Denmark
Andersen, Lene Nonboe, Birker.o slashed.d, Denmark
Lassen, S.o slashed.ren Flensted, Copenhagen .O slashed., Denmark
Kauppinen, Markus Sakari, Copenhagen N, Denmark
Nielsen, Jack Bech, Hellerup, Denmark
PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5919691		19990706	
	WO 9611262		19960418	<--
APPLICATION INFO.:	US 1997-809763		19970320	(8)
	WO 1995-DK400		19951006	
			19970326	PCT 371 date
			19970326	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1994-1160	19941006
	DK 1994-1296	19941111

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Patterson, Jr., Charles L.
LEGAL REPRESENTATIVE: Zelson, Esq., Steve T., Gregg, Esq., Valeta A.
NUMBER OF CLAIMS: 16
EXEMPLARY CLAIM: 1
LINE COUNT: 2395
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB DNA sequences are disclosed encoding an enzyme exhibiting endoglucanase activity. The endoglucanase is useful in a variety of industrial processes requiring an alkaline cellulase.

L8 ANSWER 30 OF 57 USPATFULL
ACCESSION NUMBER: 1999:21948 USPATFULL
TITLE: Enzyme with endo-1,3(4)-.beta.- Glucanase activity
INVENTOR(S): Kofod, Lene Venke, Upperl.o slashed.se, Denmark
Andersen, Lene Nonboe, Birker.o slashed.d, Denmark
Kauppinen, Markus Sakari, K.o slashed.benhavn N, Denmark
Christgau, Stephan, Gentofte, Denmark
Dalb.o slashed.ge, Henrik, Virum, Denmark
Olsen, Hans Sejr, Holte, Denmark
Breinholt, Jens, Bagsv.ae butted.rd, Denmark
PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5871966		19990216	
	WO 9531533		19951123	<--
APPLICATION INFO.:	US 1996-737526		19961108	(8)
	WO 1995-DK188		19950511	
			19961212	PCT 371 date
			19961216	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1994-546	19940511

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Wax, Robert A.
ASSISTANT EXAMINER: Slobodyansky, Elizabeth
LEGAL REPRESENTATIVE: Zelson, Esq., Steve T., Gregg, Esq, Valeta A.
NUMBER OF CLAIMS: 16
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 6 Drawing Figure(s); 6 Drawing Page(s)
LINE COUNT: 1299
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A partial amino acid sequence of an endo-.beta.-1,4-glucanase obtainable by means of Aspergillus aculeatus is described, and also corresponding recombinant DNA sequences, vectors and transformed hosts. Use of the endo-.beta.- 1,4-glucanase or a pectinase preparation enriched with the endo-.beta.-1,4-glucanase for degradation or modification of plant cell walls is described.

L8 ANSWER 31 OF 57 USPATFULL
ACCESSION NUMBER: 1999:15880 USPATFULL
TITLE: Enzyme preparation comprising a modified enzyme
INVENTOR(S): Olsen, Arne Agerlin, Virum, Denmark
Svendsen, Allan, Birker.o slashed.d, Denmark
Borch, Kim, Copenhagen K, Denmark
Lund, Henrik, Copenhagen N, Denmark
Thellersen, Marianne, Frederiksberg C, Denmark

Rosholm, Peter, Pentaling Jaya, Malaysia
Munk, Niels, Frederiksberg F, Denmark
PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5866526		19990202	
	WO 9509909		19950413	<--
APPLICATION INFO.:	US 1996-619753		19960502	(8)
	WO 1994-DK368		19941004	
			19960502	PCT 371 date
			19960502	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1993-1111	19931004
	DK 1994-259	19940304

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Lusignan, Michael
LEGAL REPRESENTATIVE: Zelson, Steve T., Gregg, Valeta
NUMBER OF CLAIMS: 23
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 6 Drawing Figure(s); 6 Drawing Page(s)
LINE COUNT: 1628
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB An enzyme preparation comprising a modified enzyme selected from the group consisting of an amylase, lipase, oxidorcductase, pectinace or hemicellulase, the modified enzyme having an improved performance due to an alkaline pI and/or increased surface activity obtained by chemical modification or amino acid substitution, is useful e.g., in detergents, in baking flour, in animal feed, in the manufacture of cellulosic fabrics and for the treatment of lignocellulosic fibers.

L8 ANSWER 32 OF 57 USPATFULL
ACCESSION NUMBER: 1999:1779 USPATFULL
TITLE: Method for reducing respiratory allergenicity
INVENTOR(S): Olsen, Arne Agerlin, Virum, Denmark
Hansen, Lars Bo, Herlev, Denmark
Beck, Thomas Christian, Birker.o slashed.d, Denmark
PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5856451		19990105	
	WO 9617929		19960613	<--
APPLICATION INFO.:	US 1997-836293		19970512	(8)
	WO 1995-DK497		19951207	
			19970512	PCT 371 date
			19970512	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1994-1395	19941207
	DK 1994-1396	19941207
	DK 1994-1397	19941207
	DK 1994-1398	19941207
	DK 1994-1399	19941207
	DK 1994-1400	19941207
	DK 1994-1401	19941207

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Sayala, Chhaya D.
LEGAL REPRESENTATIVE: Zelson, Esq., Steve T., Agris, Esq., Cheryl H.
NUMBER OF CLAIMS: 37

EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 5 Drawing Figure(s); 5 Drawing Page(s)
LINE COUNT: 2323
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention relates to modified polypeptides with reduced allergenicity comprising a parent polypeptide with a molecular weight from between 10 kDa and 100 kDa conjugated to a polymer with a molecular weight (M.sub.r) in the range of 1 kDa and 60 kDa. The modified polypeptide are produced using a process including the step of conjugating from 1 to 30 polymer molecules with the parent polypeptide. Further the invention relates to compositions comprising said polypeptides and further ingredients normally used in e.g. detergents, including dishwashing detergents and soap bars, household article, agrochemicals, personal care products, cosmetics, toiletries, oral and dermal pharmaceuticals, composition for treating textiles, and compositions used for manufacturing food and feed. Finally the invention is directed to uses of polypeptides with reduced allergenicity or compositions thereof for reducing the allergenicity of productsfor a vast number of industrial applications.

L8 ANSWER 33 OF 57 USPATFULL
ACCESSION NUMBER: 1998:122254 USPATFULL
TITLE: DNA encoding an enzyme with endoglucanase activity from Trichoderma harzianum
INVENTOR(S): Dalb.o slashed.ge, Henrik, Virum, Denmark
Christgau, Stephan, Gentofte, Denmark
Andersen, Lene Nonboe, Birker.o slashed.d, Denmark
Kofod, Lene Venke, Ugerl.o slashed.se, Denmark
Kauppinen, Markus Sakari, Copenhagen, Denmark
PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5817499		19981006	
	WO 9502043		19950119	<--
APPLICATION INFO.:	US 1996-578590		19960103	(8)
	WO 1994-DK275		19940705	
			19960103	PCT 371 date
			19960103	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1993-812	19930706

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Grimes, Eric
LEGAL REPRESENTATIVE: Zelson, Esq., Steve T., Gregg, Esq., Valeta A.
NUMBER OF CLAIMS: 11
EXEMPLARY CLAIM: 1
LINE COUNT: 864
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB DNA encoding an endoglucanase from Trichoderma harzianum is disclosed. The endoglucanase has activity toward mixed .beta.-1,3-1,4 glucans and is especially useful in brewing processes.

L8 ANSWER 34 OF 57 USPATFULL
ACCESSION NUMBER: 1998:88801 USPATFULL
TITLE: Cleaning compositions comprising xylanases
INVENTOR(S): Baeck, Andre Cesar, Bonheiden, Belgium
Busch, Alfred, Londerzeel, Belgium
Verschuere, Ann Katrien Marie Agnes, Beernem, Belgium
PATENT ASSIGNEE(S): The Procter & Gamble Company, Cincinnati, OH, United States (U.S. corporation)

	NUMBER	KIND	DATE

PATENT INFORMATION:	US 5786316	19980728	
	WO 9613568	19960509	<--
APPLICATION INFO.:	US 1997-817711	19970416	(8)
	WO 1995-US12490	19950929	
		19970416	PCT 371 date
		19970416	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	BE 1994-870169	19941027

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Fries, Kery
LEGAL REPRESENTATIVE: Bolam, Brian M., Zerby, Kim William, Echler, Sr., Richard S.
NUMBER OF CLAIMS: 11
EXEMPLARY CLAIM: 1
LINE COUNT: 1473
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention concerns compositions comprising xylanolytic activity. Specfically, the invention relates to detergent compositions havin xylanase activity. Specific compositions show an excellent boost on cleaning performanc on fruit, vegetables and/or mud and clay compounds containing said soil.

L8 ANSWER 35 OF 57 USPATFULL
ACCESSION NUMBER: 1998:42260 USPATFULL
TITLE: Alkaline glucose oxidase obtained from cladosporium oxysporum
INVENTOR(S): Oxenb.o slashed.ll, Karen M., Bagsvaerd, Denmark
Si, Joan Qi, Bagsvaerd, Denmark
Aagaard, Jesper, Bagsvaerd, Denmark
PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5741688		19980421	
	WO 9529996		19951109	<--
APPLICATION INFO.:	US 1995-446645		19950525	(8)
	WO 1995-DK178		19950503	
			19950525	PCT 371 date
			19950525	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1994-504	19940503

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Lankford, Jr., Leon B.
ASSISTANT EXAMINER: Tafe, Christopher R.
LEGAL REPRESENTATIVE: Zelson, Esq., Steve T., Agris, Esq., Cheryl H.
NUMBER OF CLAIMS: 4
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 3 Drawing Figure(s); 3 Drawing Page(s)
LINE COUNT: 1178
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A glucose oxidase obtained from a Cladosporium oxysporum strain, designated as CBS 163.94, characterized by a pH-optimum in he range pH 6-7, having more than 75% of maximum activity at pH 8, determined at 30.degree. C. with D-glucose as substrate.

L8 ANSWER 36 OF 57 USPATFULL
ACCESSION NUMBER: 1998:1645 USPATFULL
TITLE: Process for producing/secreting a protein by a transformed mould using expression/secretion regulating regions derived from a aspergillus endoxylanase II gene

INVENTOR(S): Gouka, Robertus Johannes, The Hague, Netherlands
van den Hondel, Cornelis Antonius, Gouda, Netherlands
Musters, Wouter, Maassluis, Netherlands
Stam, Hein, Diemen, Netherlands
Verbakel, Johannes Maria, Maasland, Netherlands
PATENT ASSIGNEE(S): Unilever Patent Holdings B.V., Vlaardingen, Netherlands (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5705358		19980106	
	WO 9312237		19930624	<--
APPLICATION INFO.:	US 1994-244686		19940607	(8)
	WO 1992-EP2896		19921209	
			19940607	PCT 371 date
			19940607	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	NL 1991-2051	19911209

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Wax, Robert A.
ASSISTANT EXAMINER: Bugaisky, Gabriele E.
LEGAL REPRESENTATIVE: Cushman Darby & Cushman IP Group Pillsbury Madison & Sutro LLP
NUMBER OF CLAIMS: 13
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 90 Drawing Figure(s); 10 Drawing Page(s)
LINE COUNT: 1262
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Methods are described for the isolation and characterization of DNA sequences from Aspergillus niger var. awamori which are involved in the expression and secretion of endoxylanase II (exlA) by said Aspergillus mould. A process using these expression and/or secretion regulating regions to direct the production and optionally the secretion of proteins other than endoxylanase II by transformed moulds is provided.

L8 ANSWER 37 OF 57 USPATFULL
ACCESSION NUMBER: 97:112353 USPATFULL
TITLE: Enzymes with xylanase activity from Aspergillus aculeatus
INVENTOR(S): Kofod, Lene Venke, Ugerloese, Denmark
Kauppinen, Markus Sakari, Copenhagen, Denmark
Christgau, Stephan, Vedbaek, Denmark
Heldt-Hansen, Hans Peter, Virum, Denmark
Dalb.o slashed.ge, Henrik, Esbjerg, Denmark
Andersen, Lene Nonboe, Birker.o slashed.d, Denmark
Si, Joan Qi, Klampenborg, Denmark
Jacobsen, Tina Sejersg.ang.rd, Copenhagen, Denmark
Munk, Niels, Frederiksberg, Denmark
Mullertz, Anette, Charlottenlund, Denmark
PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5693518		19971202	
	WO 9421785		19940929	<--
APPLICATION INFO.:	US 1996-507431		19960215	(8)
	WO 1994-DK88		19940302	
			19960215	PCT 371 date
			19960215	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1993-268	19930310

DK 1993-1151 19931014
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Wax, Robert A.
ASSISTANT EXAMINER: Nashed, Nashaat T.
LEGAL REPRESENTATIVE: Zelson, Esq., Steve T., Gregg, Esq., Valeta A.
NUMBER OF CLAIMS: 20
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 10 Drawing Figure(s); 10 Drawing Page(s)
LINE COUNT: 2056
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB An enzyme exhibiting xylanase activity, which enzyme is immunologically reactive with an antibody raised against a purified xylanase derived from Aspercgillus aculeatus, CBS 101.43. The enzyme may be used for degrading plant cell wall components, e.g., in the preparation of feed, in baking, in the paper and pulp industry and in connection with separation of **wheat** into starch and gluten.

L8 ANSWER 38 OF 57 USPATFULL
ACCESSION NUMBER: 97:20419 USPATFULL
TITLE: Xylanase, DNA sequences, coding for the xylanases and methods of use thereof
INVENTOR(S): Schulein, Martin, K.o slashed.benhavn, Denmark
Halkier, Torben, Frederiksberg, Denmark
Heldt-Hansen, Hans P., Virum, Denmark
Dalb.o slashed.ge, Henrik, Virum, Denmark
Pedersen, Lars S., Lyngby, Denmark
PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5610048		19970311	
	WO 9217573		19921015	<--
APPLICATION INFO.:	US 1993-119169		19930921	(8)
	WO 1992-DK99		19920327	
			19930921	PCT 371 date
			19930921	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	EP 1991-610027	19910402

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Wax, Robert A.
ASSISTANT EXAMINER: Moore, William W.
LEGAL REPRESENTATIVE: Zelson, Esq., Steve T., Lambiris, Esq., Elias J.
NUMBER OF CLAIMS: 31
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Figure(s); 2 Drawing Page(s)
LINE COUNT: 1094
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The xylanase is characterized by several partial amino acid sequences and is immunoreactive with an antibody raised against a purified xylanase derived from Humicola insolens, DSM 1800. This xylanase preparation is practically free of cellulase xylanase and is well suited for treatment of paper pulp, as a baking agent and as an additive to fodder.

L8 ANSWER 39 OF 57 USPATFULL
ACCESSION NUMBER: 96:82595 USPATFULL
TITLE: Ethanol production by recombinant hosts
INVENTOR(S): Fowler, David E., Gainesville, FL, United States
Horton, Philip G., Gainesville, FL, United States
Ben-Bassat, Arie, Gainesville, FL, United States
PATENT ASSIGNEE(S): BioEnergy International, L.C., Gainesville, FL, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5554520		19960910	<--
APPLICATION INFO.:	US 1993-26051		19930305	(8)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1992-946290, filed on 17 Sep 1992, now patented, Pat. No. US 5487989 which is a continuation-in-part of Ser. No. US 1992-846344, filed on 6 Mar 1992, now patented, Pat. No. US 5424202 which is a continuation-in-part of Ser. No. US 1991-670821, filed on 18 Mar 1991, now abandoned And Ser. No. US 1990-624277, filed on 7 Dec 1990, now abandoned , each Ser. No. US - which is a continuation-in-part of Ser. No. US 1989-352067, filed on 15 May 1989, now patented, Pat. No. US 5000000 which is a continuation-in-part of Ser. No. US 1988-239099, filed on 31 Aug 1988, now abandoned

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Wax, Robert A.
ASSISTANT EXAMINER: Grimes, Eric
LEGAL REPRESENTATIVE: Hamilton, Brook, Smith & Reynolds, P.C.
NUMBER OF CLAIMS: 45
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 33 Drawing Figure(s); 21 Drawing Page(s)
LINE COUNT: 4244
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Novel plasmids comprising genes which code for the alcohol dehydrogenase and pyruvate decarboxylase are have been transformed with genes coding for alcohol dehydrogenase and pyruvate. By virtue of their transformation with these genes, the recombinant hosts are capable of producing significant amounts of ethanol as a fermentation product. Also disclosed are methods for increasing the growth of recombinant hosts and methods for reducing the accumulation of undesirable metabolic products in the growth medium of these hosts. Also disclosed are recombinant host capable of producing significant amounts of ethanol as a fermentation product of oligosaccharides and plasmids comprising genes encoding polysaccharases, in addition to the genes described above which code for the alcohol dehydrogenase and pyruvate decarboxylase. Further, methods are described for producing ethanol from oligomeric feedstock using the recombinant hosts described above. Also provided is a method for enhancing the production of functional proteins in a recombinant host comprising overexpressing an adhB gene in the host. Further provided are process designs for fermenting oligosaccharide-containing biomass to ethanol.

L8 ANSWER 40 OF 57 USPATFULL

ACCESSION NUMBER: 96:21015 USPATFULL
TITLE: Method of removing color from wood pulp using xylanase from streptomyces roseiscleroticus NRRL B-11019
INVENTOR(S): Jeffries, Thomas W., Madison, WI, United States
Grabski, Anthony C., Madison, WI, United States
Patel, Rajesh N., Louisville, KY, United States
Elegir, Graziano, Milan, Italy
Szakacs, George, Dayka Gabor, Hungary
PATENT ASSIGNEE(S): The United States of America as represented by the Secretary of Agriculture, Washington, DC, United States (U.S. government)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5498534		19960312	<--
APPLICATION INFO.:	US 1995-453289		19950530	(8)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1994-257965, filed on 8 Jun 1994, now abandoned which is a continuation-in-part of Ser. No. US 1992-857060, filed on 25 Mar 1992, now patented, Pat. No. US 5369024

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Naff, David M.
ASSISTANT EXAMINER: Meller, Michael V.
LEGAL REPRESENTATIVE: Stockhausen, Janet I., Silverstein, M. Howard, Fado, John D.
NUMBER OF CLAIMS: 6
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 29 Drawing Figure(s); 29 Drawing Page(s)
LINE COUNT: 1776
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method of removing color from wood pulp is disclosed. The method comprises the steps of preparing a wood pulp, treating the wood pulp with the xylanase wherein the xylanase is capable of releasing chromophores from the pulp and extracting the wood pulp to remove chromophores. Also disclosed are substantially purified preparations of xylanase enzymes from bacterial isolates. The xylanase is preferrably isolated xyl 3 obtained from Streptomyces roseiscleroticus NRRL B-11019, wherein xyl 3 has a molecular weight of approximately 21 kD as determined by SDS-gel electrophoresis and a pH optima of pH 5.0-7.0.

L8 ANSWER 41 OF 57 USPATFULL
ACCESSION NUMBER: 96:9365 USPATFULL
TITLE: Ethanol production by recombinant hosts
INVENTOR(S): Fowler, David E., Gainesville, FL, United States
Horton, Philip G., Gainesville, FL, United States
Ben-Bassat, Arie, Gainesville, FL, United States
PATENT ASSIGNEE(S): Bioenergy International, L.C., Gainesville, FL, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5487989		19960130	<--
APPLICATION INFO.:	US 1992-946290		19920917 (7)	

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1992-846344, filed on 6 Mar 1992 which is a continuation-in-part of Ser. No. US 1991-670821, filed on 18 Mar 1991, now abandoned And a continuation-in-part of Ser. No. US 1990-624277, filed on 7 Dec 1990, now abandoned , each Ser. No. US 1989-352062, filed on 15 May 1989, now patented, Pat. No. US 5000000 which is a continuation-in-part of Ser. No. US 1988-239099, filed on 31 Aug 1988, now abandoned
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Wax, Robert A.
ASSISTANT EXAMINER: Grimes, Eric
LEGAL REPRESENTATIVE: Foley & Lardner
NUMBER OF CLAIMS: 39
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 32 Drawing Figure(s); 20 Drawing Page(s)
LINE COUNT: 4137
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Novel plasmids comprising genes which code for the alcohol dehydrogenase and pyruvate decarboxylase are described. Also described are recombinant hosts which have been transformed with genes coding for alcohol dehydrogenase and pyruvate. By virtue of their transformation with these genes, the recombinant hosts are capable of producing significant amounts of ethanol as a fermentation product. Also disclosed are methods for increasing the growth of recombinant hosts and methods for reducing the accumulation of undesirable metabolic products in the growth medium of these hosts. Also disclosed are recombinant host capable of producing significant amounts of ethanol as a fermentation product of oligosaccharides and plasmids comprising genes encoding polysaccharases, in addition to the genes described above which code for the alcohol dehydrogenase and pyruvate decarboxylase. Further, methods are described for producing ethanol from oligomeric feedstock using the recombinant hosts described above. Also provided is a method for enhancing the

production of functional proteins in a recombinant host comprising overexpressing an adhB gene in the host. Further provided are process designs for fermenting oligosaccharide-containing biomass to ethanol.

L8 ANSWER 42 OF 57 USPATFULL
ACCESSION NUMBER: 96:3641 USPATFULL
TITLE: Ethanol production in Gram-positive microbes
INVENTOR(S): Ingram, Lonnie O'Neal, Gainesville, FL, United States
Barbosa-Alleyne, Maria D. F., Gainesville, FL, United States
PATENT ASSIGNEE(S): University of Florida, Gainesville, FL, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5482846		19960109	<--
APPLICATION INFO.:	US 1994-220072		19940330	(8)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1993-26051, filed on 5 Mar 1993 which is a continuation-in-part of Ser. No. US 1992-946290, filed on 17 Sep 1992 which is a continuation-in-part of Ser. No. US 1992-846344, filed on 6 Mar 1992, now patented, Pat. No. US 5424202 which is a continuation-in-part of Ser. No. US 1991-670821, filed on 18 Mar 1991, now abandoned And a continuation-in-part of Ser. No. US 1990-624227, filed on 7 Dec 1990, now abandoned , each which is a continuation-in-part of Ser. No. US 1989-352062, filed on 15 May 1989, now patented, Pat. No. US 5000000 which is a continuation-in-part of Ser. No. US 1988-239099, filed on 31 Aug 1988, now abandoned
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Wax, Robert A.
ASSISTANT EXAMINER: Grimes, Eric
LEGAL REPRESENTATIVE: Saliwanchik & Saliwanchik
NUMBER OF CLAIMS: 2
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Figure(s); 2 Drawing Page(s)
LINE COUNT: 938
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The subject invention concerns the transformation of Gram-positive bacteria with heterologous genes which confer upon these microbes the ability to produce ethanol as a fermentation product. Specifically exemplified is the transformation of bacteria with genes, obtainable from Zymomonas mobilis, which encode pyruvate decarboxylase and alcohol dehydrogenase.

L8 ANSWER 43 OF 57 USPATFULL
ACCESSION NUMBER: 95:108090 USPATFULL
TITLE: Stable transformation of **maize** cells by electroporation
INVENTOR(S): Krzyzek, Richard A., Edina, MN, United States
Laursen, Cheryl R. M., St. Paul, MN, United States
Anderson, Paul C., Minneapolis, MN, United States
PATENT ASSIGNEE(S): DeKalb Genetics Corporation, DeKalb, IL, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5472869		19951205	<--
APPLICATION INFO.:	US 1994-255433		19940608	(8)

RELATED APPLN. INFO.: Division of Ser. No. US 1990-635279, filed on 28 Dec 1990, now patented, Pat. No. US 5384253
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Benzion, Gary
LEGAL REPRESENTATIVE: Schwegman, Lundberg & Woessner

NUMBER OF CLAIMS: 7
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 3 Drawing Figure(s); 3 Drawing Page(s)
LINE COUNT: 1445
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention provides a method to increase the susceptibility of cultured Zea mays cells to stable transformation with recombinant DNA via electroporation, by pretreating the Zea mays cells with certain pectin-degrading enzymes, so that the cells retain their ability to regenerate fertile, transgenic Zea mays plants containing the DNA which is also heritable.

L8 ANSWER 44 OF 57 USPATFULL
ACCESSION NUMBER: 95:54314 USPATFULL
TITLE: Cloning and expression of acetyl xylan esterases from fungal origin
INVENTOR(S): De Graaff, Leendert H., Oosterbeek, Netherlands
Visser, Jacob, Wageningen, Netherlands
Van Den Broeck, Henriette C., Ede, Netherlands
Strozyk, Francois, Leforest, France
Kormelink, Felix J. M., Bennekom, Netherlands
Boonman, Johannes C. P., Haarlem, Netherlands
PATENT ASSIGNEE(S): Gist-Brocades, N.V., Delft, Netherlands (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5426043		19950620	<--
APPLICATION INFO.:	US 1992-851976		19920316	(7)

	NUMBER	DATE
PRIORITY INFORMATION:	EP 1991-200579	19910318

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Wax, Robert A.
ASSISTANT EXAMINER: Prouty, Rebeeca
LEGAL REPRESENTATIVE: Morrison & Foerster
NUMBER OF CLAIMS: 2
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Figure(s); 2 Drawing Page(s)
LINE COUNT: 939
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Methods and DNA constructs are provided for the expression of a fungal acetyl xylan esterase gene in microbial hosts. A purified fungal acetyl xylan esterase is obtained which is suited for the use as an accessory enzyme in the degradation of acetylated xylans.

L8 ANSWER 45 OF 57 USPATFULL
ACCESSION NUMBER: 95:52249 USPATFULL
TITLE: Ethanol production by recombinant hosts
INVENTOR(S): Ingram, Lonnie O., Gainesville, FL, United States
Beall, David S., Gainesville, FL, United States
Burchhardt, Gerhard F. H., Gainesville, FL, United States
Guimaraes, Walter V., Vicosa, Brazil
Ohta, Kazuyoshi, Miyazaki, Japan
Wood, Brent E., Gainesville, FL, United States
Shanmugam, Keelnatham T., Gainesville, FL, United States
PATENT ASSIGNEE(S): The University of Florida, Gainesville, FL, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5424202		19950613	<--
APPLICATION INFO.:	US 1992-846344		19920306	(7)

DISCLAIMER DATE: 20080319
RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1991-670821, filed on 18 Mar 1991, now abandoned And a continuation-in-part of Ser. No. US 1990-624277, filed on 7 Dec 1990, now abandoned , each which is a continuation-in-part of Ser. No. US 1989-352062, filed on 15 May 1989, now patented, Pat. No. US 5000000 which is a continuation-in-part of Ser. No. US 1988-239099, filed on 31 Aug 1988, now abandoned
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Patterson, Jr., Charles L.
ASSISTANT EXAMINER: Grimes, Eric
LEGAL REPRESENTATIVE: Foley & Lardner
NUMBER OF CLAIMS: 54
EXEMPLARY CLAIM: 10
NUMBER OF DRAWINGS: 31 Drawing Figure(s); 19 Drawing Page(s)
LINE COUNT: 3948
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Novel plasmids comprising genes which code for the alcohol dehydrogenase and pyruvate decarboxylase are described. Also described are recombinant hosts which have been transformed with genes coding for alcohol dehydrogenase and pyruvate. By virtue of their transformation with these genes, the recombinant hosts are capable of producing significant amounts of ethanol as a fermentation product. Also disclosed are methods for increasing the growth of recombinant hosts and methods for reducing the accumulation of undesirable metabolic products in the growth medium of these hosts. Also disclosed are recombinant host capable of producing significant amounts of ethanol as a fermentation product of oligosaccharides and plasmids comprising genes encoding polysaccharases, in addition to the genes described above which code for the alcohol dehydrogenase and pyruvate decarboxylase. Further, methods are described for producing ethanol from oligomeric feedstock using the recombinant hosts described above. Also provided is a method for enhancing the production of functional proteins in a recombinant host comprising overexpressing an adhB gene in the host. Further provided are process designs for fermenting oligosaccharide-containing biomass to ethanol.

L8 ANSWER 46 OF 57 USPATFULL
ACCESSION NUMBER: 95:40875 USPATFULL
TITLE: DNA constructs containing segments from tomato polygalacturonase and pectin esterase genes
INVENTOR(S): Bridges, Ian G., Slater, IA, United States
Grierson, Donald, Loughbrough, England
Schuch, Wolfgang, Crowthorne, England
PATENT ASSIGNEE(S): Zeneca Limited, London, England (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5413937		19950509	<--
APPLICATION INFO.:	US 1993-162275		19931207	(8)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1990-621714, filed on 5 Dec 1990, now patented, Pat. No. US 5296376 which is a continuation-in-part of Ser. No. US 1987-119614, filed on 12 Nov 1987

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1986-262879	19861111
	GB 1989-27048	19891130

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Chereskin, Che S.
LEGAL REPRESENTATIVE: Cushman Darby & Cushman
NUMBER OF CLAIMS: 1
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Figure(s); 2 Drawing Page(s)

LINE COUNT: 861
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Process for the inhibition of the production of a gene product in a plant cell which comprises generating in the cell while the gene product is being expressed mRNA from recombinant DNA coding for part only of the gene product: also constructs for use in the process, and cells and plants that carry out the process. Specifically applicable to control of fruit ripening, in particular in tomatoes.

L8 ANSWER 47 OF 57 USPATFULL
ACCESSION NUMBER: 95:7818 USPATFULL
TITLE: Genetic transformation of **maize** cells by electroporation of cells pretreated with pectin degrading enzymes
INVENTOR(S): Krzyzek, Richard A., Edina, MN, United States
Laursen, Cheryl R. M., St. Paul, MN, United States
Anderson, Paul C., Minneapolis, MN, United States
PATENT ASSIGNEE(S): DeKalb Genetics Corporation, DeKalb, IL, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5384253		19950124	<--
APPLICATION INFO.:	US 1990-635279		19901228	(7)

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Benzion, Gary
LEGAL REPRESENTATIVE: Woessner, Warren D.
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 6 Drawing Figure(s); 3 Drawing Page(s)
LINE COUNT: 1495
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention provides a method to increase the susceptibility of cultured Zea mays cells to stable transformation with recombinant DNA via electroporation, by pretreating the Zea mays cells with certain pectin-degrading enzymes, so that the cells retain their ability to regenerate fertile, transgenic Zea mays plants containing the DNA which is also heritable.

L8 ANSWER 48 OF 57 USPATFULL
ACCESSION NUMBER: 94:104494 USPATFULL
TITLE: Xylanase from streptomyces roseiscleroticus NRRL-11019 for removing color from kraft wood pulps
INVENTOR(S): Jeffries, Thomas W., Madison, WI, United States
Grabski, Anthony C., Madison, WI, United States
Patel, Rajesh N., Madison, WI, United States
PATENT ASSIGNEE(S): The United States of America as represented by the Secretary of Agriculture, Washington, DC, United States (U.S. government)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5369024		19941129	<--
APPLICATION INFO.:	US 1992-857060		19920325	(7)

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Naff, David M.
ASSISTANT EXAMINER: Meller, Michael V.
LEGAL REPRESENTATIVE: Silverstein, M. Howard, Fado, John D., Stockhausen, Janet I.
NUMBER OF CLAIMS: 1
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 24 Drawing Figure(s); 24 Drawing Page(s)
LINE COUNT: 972
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method of removing color from wood pulp is disclosed. The method

comprises the steps of preparing a wood pulp, treating the wood pulp with the xylanase wherein the xylanase is capable of releasing chromophores from the pulp and extracting the wood pulp to remove chromophores. In a preferred form of the invention, the wood pulp is a kraft pulp and the xylanase is selected from the group consisting of xyl 1, xyl 2, xyl 3 and xyl 4. These xylanases are obtained from Streptomyces roseiscleroticus NRRL-11019.

L8 ANSWER 49 OF 57 USPATFULL

ACCESSION NUMBER:	94:24212 USPATFULL		
TITLE:	DNA, constructs, cells and plants derived therefrom		
INVENTOR(S):	Bridges, Ian G., Slater, IA, United States Grierson, Donald, Loughbrough, England Schuch, Wolfgang W., Crowthorne, England		
PATENT ASSIGNEE(S):	Imperial Chemical Industries PLC, London, England (non-U.S. corporation)		
	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5296376		19940322 <--
APPLICATION INFO.:	US 1990-621714		19901205 (7)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1987-119614, filed on 12 Nov 1987		
	NUMBER		DATE
PRIORITY INFORMATION:	GB 1986-262879		19861111
	GB 1989-27048		19891126
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Chereskin, Che S.		
LEGAL REPRESENTATIVE:	Cushman, Darby & Cushman		
NUMBER OF CLAIMS:	1		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	2 Drawing Figure(s); 2 Drawing Page(s)		
LINE COUNT:	843		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Process for the inhibition of the production of a gene product in a plant cell which comprises generating in the cell while the gene product is being expressed mRNA from recombinant DNA coding for part only of the gene product: also constructs for use in the process, and cells and plants that carry out the process. Specifically applicable to control of fruit ripening, in particular in tomatoes.

L8 ANSWER 50 OF 57 USPATFULL

ACCESSION NUMBER:	92:42672 USPATFULL		
TITLE:	Cellulase-free endo-xylanase enzyme of use in pulp delignification		
INVENTOR(S):	Bernier, Roger L., Mississauga, Canada Kluepfel, Dieter, Montreal, Canada Morosoli, Rolf, Ville St-Laurent, Canada Shareck, Francois, Dollard-des-Ormeaux, Canada		
PATENT ASSIGNEE(S):	Institut Armand Frappier, Quebec, Canada (non-U.S. corporation)		
	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5116746		19920526 <--
APPLICATION INFO.:	US 1991-764083		19910923 (7)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1988-164472, filed on 4 Mar 1988, now abandoned		
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Peet, Richard C.		
LEGAL REPRESENTATIVE:	Cushman, Darby & Cushman		
NUMBER OF CLAIMS:	27		
EXEMPLARY CLAIM:	1		

LINE COUNT: 753
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method of treating lignocellulosic material with a cellulase-free endo-xylanase for delignification, brightening and viscosity improvement. The endo-xylanase is obtained by the overexpression of the xylanase gene using a cellulase-negative recombinant microorganism of the genus Streptomyces. The recombinant microorganism is produced in a homologous cloning system in which the xylanase gene is inserted into a vector plasmid to provide the hybrid plasmid that is introduced into a host cellulase-negative mutant strain and said xylanase gene, said vector plasmid and said host mutant strain are obtained from microorganisms of the genus Streptomyces.

L8 ANSWER 51 OF 57 USPATFULL
ACCESSION NUMBER: 92:33926 USPATFULL
TITLE: Composition for improving the properties of dough and method of using same
INVENTOR(S): Maat, Jan, Monster, Netherlands
Roza, Martinus, Strijen, Netherlands
PATENT ASSIGNEE(S): Van den Bergh Foods Co., Lisle, IL, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5108765		19920428	<--
APPLICATION INFO.:	US 1990-498260		19900323	(7)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1990-485416, filed on 27 Feb 1990, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1989-6837	19890323

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Czaja, Donald E.
ASSISTANT EXAMINER: Aberle, Jean L.
LEGAL REPRESENTATIVE: Mitelman, Rimma
NUMBER OF CLAIMS: 19
EXEMPLARY CLAIM: 1
LINE COUNT: 212
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A composition is disclosed which comprises cellulase, xylanase, peroxidase, and optionally an oxidase. The composition may be incorporated in flour as an additive to dough for bread or other baked dough products such as puff pastry. Flour compositions comprising a bread improver composition of cellulase, peroxidase and optionally an oxidase, and process for improving baked goods by using same are also shown.

L8 ANSWER 52 OF 57 USPATFULL
ACCESSION NUMBER: 90:83574 USPATFULL
TITLE: Production of thermostable xylanase and cellulase
INVENTOR(S): Yu, Ernest K. C., Brampton, Canada
Tan, Larry U. L., Navan, Canada
Saddler, John N., Ottawa, Canada
PATENT ASSIGNEE(S): Forintek Canada Corp., Ottawa, Canada (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 4966850		19901030	<--
APPLICATION INFO.:	US 1989-340307		19890419	(7)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1987-5853, filed on 21 Jan 1987, now abandoned
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Weimar, Elizabeth C.

ASSISTANT EXAMINER: Patterson, Jr., Charles L.
LEGAL REPRESENTATIVE: Klotz, Trevor C.
NUMBER OF CLAIMS: 14
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 5 Drawing Figure(s); 5 Drawing Page(s)
LINE COUNT: 1048
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention provides for the use in the production of cellulolytic and xylanolytic enzymes, particularly xylanase and cellulase, of the microorganism Thermoascus aurantiacus in a culture medium containing at least one of a cellulose or hemicellulose substrate whereby to produce thermostable enzymes, particularly cellulase and xylanase.

L8 ANSWER 53 OF 57 USPATFULL
ACCESSION NUMBER: 90:71684 USPATFULL
TITLE: Method for production of cellulolytic enzymes and method for saccharification of cellulosic materials therewith
INVENTOR(S): Yamanobe, Takashi, Ibaraki, Japan
Mitsuishi, Yasushi, Ibaraki, Japan
Takasaki, Yoshiyuki, Chiba, Japan
PATENT ASSIGNEE(S): Agency of Industrial Science & Technology, Tokyo, Japan (non-U.S. government)
Ministry of International Trade & Industry, Tokyo, Japan (non-U.S. government)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 4956291		19900911	<--
APPLICATION INFO.:	US 1987-11043		19870205	(7)

DISCLAIMER DATE: 20021231
RELATED APPLN. INFO.: Continuation of Ser. No. US 1985-720416, filed on 5 Apr 1985, now patented, Pat. No. US 4742005

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1985-581	19850107
	JP 1985-3490	19850111

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Tarcza, John E.
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt
NUMBER OF CLAIMS: 1
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 3 Drawing Figure(s); 1 Drawing Page(s)
LINE COUNT: 646
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method for the saccharification of a cellulosic material comprises the steps of culturing a microorganism of Acremonium cellulolyticus in a medium containing carbon sources and nitrogen sources, collecting a cellulolytic enzyme from the resultant culture broth, and causing the cellulolytic enzyme to act on the cellulosic material.

L8 ANSWER 54 OF 57 USPATFULL
ACCESSION NUMBER: 90:69583 USPATFULL
TITLE: Feed raw material and feed containing zero fibre and procedure for producing these
INVENTOR(S): Haarasilta, Asko, Putousrinne 1 D 26, SF-01600 Vantaa, Finland
Vuorenlinna, Leo, Munkkiniemen puistotie 2 B, SF-00330 Helsinki, Finland
Laiho, Kalevi, Vaskihuhdantie 4-6 H 58, SF-00740 Helsinki, Finland

	NUMBER	KIND	DATE

PATENT INFORMATION: US 4954355 19900904 <--
APPLICATION INFO.: US 1988-175149 19880330 (7)

	NUMBER	DATE
PRIORITY INFORMATION:	FI 1987-1389	19870330

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Penland, R. B.
LEGAL REPRESENTATIVE: Merchant, Gould, Smith, Edell, Welter & Schmidt
NUMBER OF CLAIMS: 22
EXEMPLARY CLAIM: 9
NUMBER OF DRAWINGS: 1 Drawing Figure(s); 1 Drawing Page(s)
LINE COUNT: 545
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention concerns a feed raw material which contains zero fibre obtained as a by-product of the wood conversion industry and mainly compound of cellulose and possibly containing lignin and which is intended to be admixed to animal feed. The feed raw material contains zero fibre about 80-99% by weight, advantageously about 90% by weight, calculated as dry matter, and bonding agent binding zero fibre about 1-20% by weight, advantageously about 10% by weight. The feed raw material mix obtained in the feed raw material-preparing procedure is granulated and possibly dried. The granular feed raw material can be admixed to produce a feed according to the invention, at a concentration about 1-50% by weight, suitably about 5-40% by weight, advantageously about 10-25% by weight.

L8 ANSWER 55 OF 57 USPATFULL
ACCESSION NUMBER: 89:60707 USPATFULL
TITLE: Process for retarding bacterial growth in silage
INVENTOR(S): Day, Carol A., Worcestershire, Great Britain
Holton, Brian W., Worcestershire, Great Britain
PATENT ASSIGNEE(S): Microbial Developments Limited, United Kingdom (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 4851240		19890725	<--
APPLICATION INFO.:	US 1988-189967		19880504	(7)

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1987-10795	19870507

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Cintins, Marianne
LEGAL REPRESENTATIVE: Ostrolenk, Faber, Gerb & Soffen
NUMBER OF CLAIMS: 8
EXEMPLARY CLAIM: 1
LINE COUNT: 571

AB The use of bacteriophages for controlling unwanted fermentation of food-stuffs, especially silage and cheese, by bacteria is disclosed.

L8 ANSWER 56 OF 57 USPATFULL
ACCESSION NUMBER: 88:32588 USPATFULL
TITLE: Production of beer
INVENTOR(S): Ducroo, Paul, Phalempin, France
PATENT ASSIGNEE(S): Gist-Brocades S.A., Prouvy, France (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 4746517		19880524	<--
APPLICATION INFO.:	US 1986-936806		19861202	(6)

	NUMBER	DATE

PRIORITY INFORMATION:	EP 1985-202017	19851203
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	Granted	
PRIMARY EXAMINER:	Jones, Raymond N.	
ASSISTANT EXAMINER:	Cintins, Marianne M.	
LEGAL REPRESENTATIVE:	Bierman and Muserlian	
NUMBER OF CLAIMS:	4	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	6 Drawing Figure(s); 6 Drawing Page(s)	
LINE COUNT:	626	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A process for improving the filterability of wort or beer comprising treating said wort or beer with an enzymatic product produced by Disporotrichum dimorphosporm exhibiting xylanase activity in an amount effective to improve the filterability.

L8 ANSWER 57 OF 57 USPATFULL

ACCESSION NUMBER:	88:27709 USPATFULL			
TITLE:	Method for production of cellulolytic enzymes and method for saccharification of cellulosic materials therewith			
INVENTOR(S):	Yamanobe, Takashi, Ibaraki, Japan Mitsuishi, Yasushi, Ibaraki, Japan Takasaki, Yoshiyuki, Matsudo, Japan			
PATENT ASSIGNEE(S):	Agency of Industrial Science & Technology, Ministry of International Trade & Industry, Tokyo, Japan (non-U.S. corporation)			
	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 4742005		19880503	<--
APPLICATION INFO.:	US 1985-720416		19850405	(6)
	NUMBER		DATE	
PRIORITY INFORMATION:	JP 1985-581		19850107	
	JP 1985-3490		19850111	
DOCUMENT TYPE:	Utility			
FILE SEGMENT:	Granted			
PRIMARY EXAMINER:	Tarcza, John E.			
LEGAL REPRESENTATIVE:	Oblon, Fisher, Spivak, McClelland & Maier			
NUMBER OF CLAIMS:	3			
EXEMPLARY CLAIM:	1			
NUMBER OF DRAWINGS:	4 Drawing Figure(s); 1 Drawing Page(s)			
LINE COUNT:	658			

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method for the saccharification of a cellulosic material comprises the steps of culturing a microorganism of Acremonium cellulolyticus in a medium containing carbon sources and nitrogen sources, collecting a cellulolytic enzyme from the resultant culture broth, and causing the cellulolytic enzyme to act on the cellulosic material.